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EDITORIAL NOTES AND COMMENT

INFLUENZA

A pandemic of influenza is again here. Sketchy accounts of its presence on the western coast were soon followed by an avalanche of respiratory infections within our midst. While statistics are not yet available regarding its severity and extent, we have all been keenly conscious of a marked rise in the morbidity and mortality within our respective communities.

Accounts of such epidemics are almost as old as medieal history. Doubtless few generations have ever escaped. Over two centuries ago Sir John Pringle, reflecting on the sudden onset and community-wide extent of this age old disease, fittingly Anglicized the Italian word for influenee since whieh time influenza has stood for a definite type of respiratory infection. The present epidemic seems to be running true to form. While apparently not as virulent as the 1918 epidemic, it has come to the Roeky Mountain region with the same suddenness and bids fair to beeome quite as extensive as any that have gone before.

About the etiology there is nothing new to offer. One organism after another has been aeeused, but as yet the jury is hung and the culprit is still at large. Probably the most tenable hypothesis is that whieh rejeets specifieity of cause and aeeepts the established principle of "exaltation" in its application to frequent and rapid passage of nonspeeifie respiratory organisms through susceptible hosts. If this be true, modern socializing influences, calling greater numbers of individuals closer and closer together, favor rather than lessen the frequeney of such outbreaks.

Obviously, then, talk of any specific treatment, either prophylactic or curative, is absurd. This, of course, does not mean that there is no effeetive treatment. Certainly we are all convinced that many lives can be saved and many eomplications averted by the simple treatment of bed rest from the onset of the infection until the fluctuating temperature returns to and remains normal. This is probably the most important therapeutic measure. Dover's powders and coal tar preparations frequently give great relief. Steam inhalations are a simple relief for the characteristic tracheitis and bronchitis. Abundant fluids, adequate and appropriate nourishment, intelligent ventilation, mild catharsis, ete., are important faetors in securing uncomplicated recovery. Beyond sueh simple prineiples the treatment is still an art about which no seientific man dare boast.

The complieations of influenza are numerous and protean in character. Roughly they group themselves into those involving eontiguous struetures of the respiratory traet and those produeed by toxemia or bacteremia, as the ease may be. In the event of any of these complications, the indication for some specifie method of treatment is more or less definite. A knowledge of the more eommon eomplications and an anticipatory frame of mind are important mental furnishings for those who essay to treat influenza.

AGRANULOCYTIC ANGINA

Ever since Whipple and Minot robbed pernicious anemia of its terrors another disease with characteristic blood findings has become "captain of the men of death," so far as percentage mortality goes. It is agranulocytic angina. Kastlin of Toronto in June, 1927, collected from the world's medical literature forty-three cases. Of these, forty died. Ten cases have been reported since Kastlin's article. The average duration of the illness was four to eight days; the extremes, two to forty-two days. It is a comparatively new clinical entity, as Schultz first brought it to the attention of the medical profession in 1922. Following the initial description, similar cases were reported chiefly by German writers. The first American case was reported by Lovett in 1924. For an accurate diagnosis of these cases blood studies must be made. Hence it is chiefly in hospitalized patients that correct diagnoses are to be expected. The standardization of hospitals by The American College of Surgeons has added much to the accuracy of such diagnoses, inasmuch as a routine blood study is made on each new patient entering the hospital. In addition to a severe gangrenous stomatitis, occurring chiefly in women past middle life, an unusual blood picture is present. Schultz reported the red blood cells, hemoglobin and platelets to be normal. This statement should be modified, as some later cases showed a definite secondary anemia. The white blood corpuscles were greatly reduced in numbers, and on differential count the polymorphonuclear leucocytes, i. e., the granulocytic cells were decreased or were absent; the lymphocytes were relatively increased up to 100 per cent. The onset is acute, with fever, chills and malaise. The tonsillar region and pharynx becomes injected and necrotic. There is local lymph-node enlargement; jaundice is present in some cases. The liver and spleen were enlarged in one-half of the cases reported by Schultz.

The writer believes that cases of agranulocytic angina are far more numerous than supposed, as he has seen three such cases in the past few years—two of these within the half year. In addition there were three cases of malignant leukopenia; all of which proved fatal. The first of the leukopenia patients was receiving antiluetic treatment —in the early days of 606 therapy. Whether a throat condition existed has escaped my memory, and it is impossible to find her hospital records. The leucocytes in this case were reduced to 600 or 800 toward the termination of the illness. At the time I feared that the therapy was responsible for the condition. A second fatal case was one of extreme streptococcus hemolytic septicemia, lasting but a few days. The leucocytes numbered only a few hundred at first and finally it was impossible to find any. A third fatal case was in an elderly woman in whom the leucocytes numbered only three or four thousand and were nearly 100 per cent lymphocytes. This was probably a case of aleukemic leukemia. In a very recent case of agranulocytic angina, which recovered, at least temporarily, the mouth condition of gangrene and necrosis was extremely bad. The blood picture, however, was not so extreme as in the fatal cases, and suggests the possibility of certain patients possessing greater resistance, or of the infection being less virulent. November 6th this patient showed a blood count of red blood cells 1,910,000, white blood cells 1,900. Differential count, polynuclears 33 per cent; lymphocytes, 67 per cent. The reduction of the granulocytic cells is noted to be less marked than in most of the reported cases, where they may vary from only 1 to 5 per cent. The lowest white count shown by this patient was November 12, 1928, when the white cells numbered 1,700. On December 1st the blood study showed the following result: Hemoglobin 70 per cent, red blood cells 3,800,000, white blood cells 4,000. Polynuclears 46 per cent, lymphocytes 48 per cent, eosinophiles 6 per cent. On December 4th the blood study showed the following result: Hemoglobin 70 per cent, red corpuscles 3,600,000, white cells 4,500, Polynuclears 54 per cent, lymphocytes 46 per cent. The provisional diagnosis in this case previous to the blood study was that of cancrum

oris or noma. The mouth lesion was first treated by curettement and actual cautery. The patient was then given four blood transfusions, a few days apart. He was also given daily hypodermics of leucocytic extract and was fed liver extract. The mouth lesions were treated vigorously and persistently with permanganate and numerous other mouth washes. One doubts the value of local treatment except for drainage and cleanliness. If antiseptics are of value in such cases, Hexylresorcinal or S. T. 37 should be mentioned.

The etiological agent is not positively known. Several observers, including Lovett, believe that it is the bacillus pyocyaneus. It is possible that it is some form of streptococcus.

It is now known, with study of further cases, that the disease can occur in males and in childhood; also that some cases are not jaundiced, and that the liver and spleen are not always enlarged.

In the differential diagnosis one must keep in mind (1) a leukopenia associated with specific poisons, such as bezol, arsenic or mercury, (2) severe sepsis with leukopenia, (3) infectious mononucleosis, (4) acute lymphatic leukemia, and (5) aleukemic leukemia.

The blood change of neutrophylic leukopenia, with relative lymphocytosis is always seen. These blood changes are the result of the primary action of an unknown etiologic agent on the bone marrow. J. R. A.

THE PLACE OF OPHTHALMOLOGY IN MEDICINE*

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Medicine, as we know it and practice it—as it will be the foundation of the healing art for the future—has grown and developed more in the last one hundred years, than it had done in the preceding fifty centuries. Through clay tablets of Nineveh, and the "books of the dead," found with the Egyptian mummies, we know something of the development in medicine that had occurred five thousand years ago; and through recorded history we can trace that which has occurred since. The development that has occurred within the memory of some of the members of this Society outstrips that of all previously recorded centuries. A single generation of doctors has had to learn more that was new in medicine, than had been learned by their predecessors from Aesculapius to Laennec. The increase of books gives little indication of the wide range of human experiences that have come to demand our attention, study and thoughtful consideration; the multiplication of remedies, manipulations, processes, that are to be weighed and compared by our judgment and applied by our acquired skill.

These changes made specialization inevitable. Hippocrates taught the clinical observation of disease, but the Hippocratic writings waited 2,000 years in the manuscript before printing made them known to physicians in general. He wrote on injuries to the head, but what could be known of these before Rokitansky had become medico-legal anatomist to the city of Vienna, before Broca, Ferrier, Horsley and Hughlings Jackson had localized functions in the brain. What could clinical observation accomplish before we had the stethoscope, the clinical thermometer, the sphygmomanometer, the compound microscope, chemical examination of urine, or blood, spinal puncture, or tests for metabolism? What was medicine before Pasteur, Koch and their successors revealed bacterial causes of disease? What was surgery before the courage of McDowell and the insight of Lister, opened the abdomen, the thorax and the brain to the exercise of modern surgery? Hippocrates wrote on "epidemics," but what did we know of epidemics before typhoid fever had been distinguished from typhus, before Asiatic cholera had met preventive medicine in Europe, before Manson and Ross had proved the malarial parasite, or Reed and Gorgas had conquered yellow fever?

*Delivered before the Denver County Medical Society, November 20, 1928.

Can we, who now practice medicine, imagine the contest with disease before we had vaccines, serums, blood transfusion, the pharmacal resources of modern chemistry, radiology, or any knowledge of endocrines, or vitamins? Review all the things that go on in every medical arts building, every day; contemplate the vast horizon of discovery that continually invites us to explore the unknown phenomenon, and attempt the untried problems of health and disease; and perhaps we can understand the change that came within the memory of a single generation. If the archaeologists are right in their conclusion, that the capacity of the human brain has not radically changed in ten thousand years, was anything possible to medicine in the 20th century but specialization? Can we admit its necessity without trying to make it reasonable and efficient? The proper division of medicine into specialties and the normal relations of each specialty to the others and to medicine as a whole, offer a field for philosophy and generalization. But a better understanding of the situation can be reached by considering one concrete instance. Ophthalmology is the most distinct and advanced specialty in medicine, if we omit dentistry, which is already splitting into subspecialties, and surgery, which is also a group rather than what can be covered by any one surgeon. Let us consider its relations to medicine in general, the other specialties of which medicine in general is now composed.

The most common and obvious assistance, which different branches of medicine give to each other, is assistance in diagnosis. It is seventy-seven years since the ophthalmoscope was introduced to the ophthalmologist by Helmholtz, who had devoted himself to physiology, extending his interest into physics. The ophthalmoscope immediately demonstrated its value with reference to the study of diseases of the eye. From the first description of it, not a year has passed without some new discovery in the field of pathology it opened to our inspection and study; and a corresponding extension of requirements for special study, if one were to be ranked as a specialist in ophthalmology.

Very soon the things seen with the ophthalmoscope began to connect themselves with lesions of organs other than the eye, and general disease processes, upon which the existence of such lesions threw early and important light. Men interested in other branches of medicine soon found important help from ophthalmic diagnosis. Clifford Albutt, Jonathan Hutchinson, Hughlings Jackson, Sir William Gowers, utilized the new window through which the condition of the central nervous system could be studied. Choked disc quickly became one of the most important signs of tumor, or other organic disease of the brain. Atrophy of the optic nerve, and forms of retinitis and choroiditis, became new and reliable evidence of general syphilitic infection. Albuminuric retinitis took its place among the symptoms of renal disease. Later the degenerative changes of the retinal vessels became leading symptoms of general cardiovascular disease. Diabetes was found to produce certain characteristic retinal changes. Pernicious anemia, tuberculosis, infective jaundice and varied forms of poisons, cannot be thoroughly studied without the ophthalmoscope. The eye was found to be a museum of pathology, in which could be seen and studied during life, the pathologic processes of many diseases.

Neurologists and diagnosticians of internal medicine frequently carry an ophthalmoscope and get from it satisfactory service; but they work under a handicap in comparison with the specialist in ophthalmology. As was pointed out by Loring "Five-sixths of the art of ophthalmoscopy are obtained in a knowledge of the normal eye, the rest is a series of representations which can be read almost at sight." One engaged in ophthalmic practice is compelled to examine daily the eye grounds of many normal eyes; and in so doing to keep clearly in mind a standard of normal appearances, color, sharpness of outline, size of blood vessels, and variations with age. Lacking this the general diagnostician is often puzzled as to whether a certain fundus oculi should be placed as normal, or as showing a com-

mencing hyperemia, swelling or atrophy. This same uncertainty arises with reference to limitations of the visual field, and even visual acuity. No one can be sure of the significance of diminished vision until he knows the refraction of the eye, or the meaning of the visual field changes; until he takes into account the adaptation of the eye tested and the ocular lesions that might affect the visual field. As to what might be called medical ophthalmology, the specialist has the same advantage of broad familiarity with evidence and decision of questions, as has the specialist in radiography, or laboratory examinations of histopathology, or chemical constitution. When life and death are under consideration and all human knowledge and the achievements of modern science are to be utilized to help us, the medical advisor has a wide range of duty and responsibility.

Biomicroscopy

Other diagnostic methods are rising into importance in ophthalmic practice. Biomicroscopy, examination of the living tissues with the compound microscope, is still in its infancy; but no equally favorable field for it is offered outside the eye. It has had limited application in laboratories of physiology and pathology; but its use in ophthalmic practice with the "corneal microscope" and slitlamp illumination, is becoming common, and is accumulating observations that will prove of value in general diagnosis. The vascularity of the conjunctiva and cornea, and the nerve endings in these parts, are more subject to local influences than the vascularity and exudates of the retina and choroid. But accessibility makes experiment possible on the anterior segment of the eye; and it is fairly certain that biomicroscopy of this part will yield results important to general medicine. The experimental study of the effects of infections, anti-bodies, radiations, temperature, drugs and local irritants, on these exposed tissues will have results important to ophthalmology, but perhaps even more important to general medicine..

Pupil

Conditions of the pupil have been referred to in medical literature, as significant in connection with diseases in different parts of the body, for hundreds of years. But the use of pupillary signs in diagnosis has been like solving a problem in algebra in which there are several unknown quantities. If there are enough equations given, the unknown quantities can be eliminated one by one and the problem solved; and, as each unknown quantity becomes known, the problem becomes simpler and easier. The pupil is affected by so many different possible influences that its size, shape and reactions become helps in diagnosis, only as most of these different possibilities are eliminated. The gradual extension of our knowledge of the anatomy and physiology of the parts of the nervous system connected with the movements of the iris, has slowly made observations on the state of the pupils more valuable in diagnosis. But our knowledge of pupillary symptoms and their significance is still imperfect. Each uncertain or disputed point, with regard to pupil reactions, that can be settled, helps to give value to what has been known about them previously. But there is still much to be learned before pupil symptoms can give the help that has been hoped from them.

In any particular case it must be remembered that the state of the pupil will be influenced by the condition of the iris, the transmission of light through the crystalline lens and vitreous, the health of the retina and its state of adaptation to light, the integrity of the visual paths connected with it, the conditions of the basal ganglia, in which afferent impulses become efferent, the condition of the tracts through which these efferent motor impulses must pass, and the wide nervous connections through which they may be modified. A child has a dilated pupil or pupils. Is it merely the large pupils of childhood, a reflex to the irritation of intestinal worms, a result of anemia, an irritation of the sympathetic nerve, a pressure on the oculomotor trunk; or is it a temporary light adaptation, modified perhaps by conditions of general nutrition? Does it mean increased intracranial pressure, or is it a sign of toxemia, or impending dis-

solution? Familiarity with what is now known of the anatomy and physiology of the parts concerned, as well as acquaintance with the other evidences of disease that might be present, is necessary to an understanding of the most obvious symptom. There are good accounts of the pupil in health and disease as in Swanzy's Diseases of the Eye, and Posey and Spiller on the Eye and the Nervous System; but further studies on the subject are needed to develop what seems to be the importance of the pupil in general diagnosis.

Ocular Movements

The diagnostic importance of the ocular movements is a relatively new departure of ophthalmology. It only became possible, when one hundred years ago Sir Charles Bell had determined by animal experimentation, the functions of the different cranial nerves. It depends like pupil significance, on a large number of variable, or unknown conditions; and its determination in the individual case is possible when other causes of the disturbance of the ocular movements have been considered and excluded. In this field there is still need for a great deal of clinical study and follow-up of cases, before we can feel that spasm, paralysis, or incoordination of the ocular muscles has a definite, important significance. It is another unsolved algebraic problem of several variables. What is already known must be persistently applied to further experience, before what is told by the visible symptoms can be recognized at sight. These are a few of the important points in which ophthalmology can serve general medical diagnosis; others are liable to arise at any time in connection with important cases.

Pathology Learned from the Eye

In the study of pathology the observations on ocular lesions, such as corneal inflammations and iris exudates, have played an important part in the past. Their study by new methods, as biomicroscopy and intravital staining, is likely to yield valuable new facts in the near future. The recent work of Lindner and Howard, on the part played by young epithelial cells in conjunctival inflammations and their importance as phagocytes in limiting the local inflammation, is suggestive of the importance of such cells in the pathology of other mucous surfaces of the body. In a paper read before the Colorado State Medical Society in 1920 (vol. 18, p. 34) attention was called to the ophthalmoscope as a means of studying the actual lesions of the depth of the eye, in all their stages from primary invasion to final result; and thus of coming to understand such lesions when they occur in parts of the body not accessible to visual examination. For the mass of medical students the ability to use the ophthalmoscope will be extremely useful in getting an understanding of pathology, before they can make any use of it in the diagnosis of disease.

With regard to pathology the malignant tumors of the eye present some striking characteristics. Retinoblastoma, the so-called "glioma of the retina" (which does not in any way closely resemble glioma of the central nervous system) is peculiar in that it develops extreme malignancy, although it starts as a strictly congenital aberration of development. In some cases it is evidently developed and malignant at birth. In most cases it is noticed as "amaurotic cat's eye" at two or three years of age. It is practically always manifest and generally runs its course, before 8 or 10 years of age; and cases reported later than that are open to the suspicion of faulty observation, or mistaken diagnosis. The tendency to retinoblastoma is distinctly a familial tendency, several successive children of the same parents dying of it. The liability to it has been noted in successive generations of certain families; and in a few cases, a child saved by early enucleation of the eye, has grown to adult life and had a child affected with retinoblastoma.

A peculiar disease of the skin and conjunctiva, is xeroderma pigmentosum. Some cases are clearly aggravated by exposure to the rays of the sun, and it chiefly affects the exposed parts of the body. In a large proportion of cases it ends in multiple epithelial cancer of the affected parts. On the other hand carcinomas, originating in other parts of the body and secondary in the uveal

tract of the eye, have an appearance and course so peculiar that the diagnosis of malignant disease may be based on these lesions, although it has not been recognized in any other organ. In some of these cases the primary focus of carcinoma has only been discovered at autopsy. Again, sarcoma primary in the eye, may arise by malignant change in a melanoma or angioma that has, to all appearances, remained benign, under observation for many years. These peculiarities of diseases that must surely be classed as malignant, may be associated with peculiarities in the development and nutrition of the organ of vision, and parts accessory to it. But they must be carefully considered in attempting to arrive at any philosophic conclusion regarding the essential nature of malignancy.

Therapeutics of Eyestrain

In ophthalmology general therapeutics, as the relief of headache, vertigo, or more obscure symptoms, by removing eyestrain, is a development of such recent time, that it is poorly understood by those who practice ophthalmology, and not sufficiently thought of by the mass of medical practitioners. Preventive medicine is the latest development of medicine. The surgery of wounds commanded attention before the dawn of recorded history, yet the ligation of arteries to check it, has been practiced for less than 400 years. Asepsis, always needed in wound treatment, has only been developed within the memory of men still living. Among the relics of antiquity, collected in museums are many skulls that show trephining, some of them multiple operations done at different times, survived, and apparently effective. Yet the races that practiced this are forgotten.

Among the ruins of Nineveh, along with clay tablets that tell the history of Babylonia, and preserve its legal code, there has been found a single fragment of a convex lens, such as might have helped any polisher of gems, or engraver of coins or medals, who had reached the age of presbyopia. But it is only within the last century that hyperopia and astigmatism, the most common errors of refraction that cause nerve strain through the eyes, have been understood. Their frequency, changes and bad effects, are only beginning to be recognized by those engaged in ophthalmic practice, and are still not definitely known to the mass of medical practitioners. The willingness to "let George do it" is manifest by the custom of referring to the optometrists, who are supposed to be successors of the opticians of former generations, the patients whose symptoms have forced them to the consciousness that something was wrong with their eyes. The medical profession has been slow to accept the responsibility implied in removing eyestrain by the prescribing of glasses, as it has been slow to adopt and master other forms of physiotherapy; leaving such things to the quacks, who may or may not have a limited, and always an abnormal and unbalanced view of medicine. The present tendency to preventive medicine ought to correct this shirking of responsibility, so far as the wearing of glasses is concerned. The suffering of nerve strain from the need of glasses becomes more common as age cuts down surplus or reserve accommodation; and diminished muscular power and activity throws the individual more and more upon the resource of using his eyes for fine mechanical pursuits, needlework and especially reading. It is a strange failure in the efficiency of the medical profession to turn the elderly patient over to the optician, or optometrist, at the time when he is most dependent on glasses, when the fitting of glasses needs to be the most exact, and the measurement for them needs to include the most careful, painstaking application of all reliable tests.

Health Examinations

This, too, is the time when careful medical diagnosis of the patient's eye conditions will yield the most important results. When health examinations are most fruitful and most generally accepted. Health examinations for glasses, which should always include the careful and skillful ophthalmoscopic examination, are one of the best forms of health examination that has yet been practiced.

The side of the subject thus far dwelt

upon is the importance of the service modern ophthalmology can render in general medicine. There is another side to it, the importance of general medicine to ophthalmology. This latter phase need not occupy as much of our time as the first; but general practitioners as well as specialists in ophthalmic practice need to be reminded that it exists. If I had iritis, and must be treated by general medicine or by local measures, either to the exclusion of the other, I would choose to be treated by general medicine. Yet many times we see a case of iritis running on many days or weeks treated with atropine in the eye, hot stupes, a darkened room or dark glasses ordered by a general practitioner, without a real health examination or any attempt to find if the underlying cause were syphilis, tuberculosis, focal infection, gastrointestinal toxemia, or some more acute departure from health. Even today, oculists of large practice have not recognized tuberculosis of the retina or uveal tract; or express complete skepticism as to the connection of uveal disease with focal infections of the nose, sinuses, tonsils, teeth or anywhere else. The fact is the sudden expansion of modern medicine and its hasty specialization, have come too suddenly for us to adapt ourselves to the new conditions.

Medical Societies and Graduate Study

Many of us have gone through some of this as a personal experience and so have some general appreciation of it. But the changes in educational methods and curriculum, made necessary by this expansion of medical knowledge have not been worked out. The only possible solution for the present, is close association in our studies and close co-operation in practice throughout the whole profession.

The ophthalmologist or any medical specialist of the 20th century must attend general medical societies, must keep up his interest in scientific advance in every branch of medicine, his personal contact with those who are specializing in other directions; and his readiness to admit that he does not "know it all," and to seek professional assistance by consultation with colleagues in all other specialties. He can get help from the neurologist, the microscopist, the physiologic chemist, the surgeon, the dentist, the bacteriologist or the illuminating engineer. The experiments in partnership and "group practice" are a feeling out for a solution of the new difficulties of sudden extension of medical knowledge. Some of them are eminently successful, some of them unsuccessful, but all of them are instructive if rightly regarded and studied from this educational point of view.

A new understanding of the enormous range of the forces, conditions, practices on which human health depends, implies new methods of educating those who are to advise the people with regard to the care of their health interests, the most important and far reaching interests they have to care for. The medical practice acts, which have been established in the last seventy years, were a formal recognition of the existence and importance of health interests, by an attempt to define who should and who should not be allowed to advise the public with regard to them. The complete recasting of medical courses, reorganization of medical schools, provision of laboratory and clinical training that have developed in the last fifty years, is another acceptance of the great change in medical teaching that was necessary to utilize the enormous development of medical science. But the end is not yet; in the last twenty-five years medical societies, general and special, have increased enormously in number and size, and are reaching out to continue and extend the education of those who practice modern medicine.

In this development there has been a tendency to break away from traditional lines of organization and work. The new needs of medical education demand a more frank and explicit consideration of the methods of medical societies as well as changes in the organization and conduct of medical schools. The earlier work of a medical society was ostensibly to furnish the opportunity for one who had some new fact or observation in medical science or art, to bring it before his colleagues. Even with this as the ostensible purpose, there would be found in al-

most all medical papers much of review of what was old in the knowledge and practice of the profession. This was not brought in as frankly educational, but often to furnish a basis, or pedestal, on which to exhibit the alleged new discovery, or individual wisdom of the author. So much has been added to the volume of medical papers, so much dragged into medical society meetings by this practice, there can be no doubt that their interest and usefulness have suffered by it. No rule of compulsory attendance can take the place of a recognition of what has real interest for the members.

Recently special organizations, frankly devoted to graduate study of medicine, or the recognition of the need for it by local and state medical societies, have brought some interesting departures from the old lines on which medical societies used to be conducted. Every local society of the size and importance of this one might plan, each year, a series of meetings, devoted primarily to the medical education of its members. Many departures from health, that would be quickly corrected if their exact character were early recognized, become serious and permanent, because the physician who is first consulted does not recognize the prominent clinical character that would at once identify the disease. Of late years there have been numerous cases of blindness from wood alcohol poisoning, and a large proportion of these have ended disastrously, because the nature of the disorder was not early recognized. The first onset of blindness is often masked, or the physician's attention drawn away from it, by the evidence of violent gastrointestinal irritation. Then comes the temporary improvement of vision, giving hope that recovery is taking place, and the final gradual loss of vision goes too far before the correct diagnosis has been established. Or, tobacco amblyopia is not recognized because the patient knows he smokes no more than he has done for several years, perhaps less; and the doctor does not know the increased susceptibility of the optic nerve to nicotine, that comes on after middle life, or the fact that the danger of loss of sight from this cause is so much a matter of individual peculiarity—idiosyncrasy—and does not know how to discover the characteristic central scotoma. Quinine amblyopia, too, has its peculiarities of narrowed visual field, while central vision is slowly recovered; and the danger of taking even small doses of quinine, after its toxic effect has once been experienced. Of the other toxic amblyopias each has its particular clinical characteristics, that might be recognized by most practitioners of medicine, if these were picked out from the current descriptions of disease, properly associated and emphasized, as they might be in a lecture, or series of lectures, that might be arranged for such a society as this. Such lectures with questions and discussions might replace meetings at which papers were to be read as original communications, based upon a single case or group of cases, but made up of details that none of the listeners would be likely to remember, and might better have learned from text books.

Such lectures may be made up of excerpts of what has long existed in medical literature, but arranged and emphasized so as to give it life and interest. They might also present facts of recent discovery, which have not yet found their place in textbooks and are to be made significant by pointing out their known or probable relations to knowledge already established. They might trace lines of progress, or steps of advance through the literature of many centuries, and give a philosophy of medicine that would make our practice and investigations more practical.

This kind of teaching that we need, cannot be found or expected in the regular medical course, given to undergraduate students who do not need it. Our need for it has been caused and forced upon us by the enormous expansion and necessary specialization in modern medicine. Let us understand the effects and dangers of our present mental environment, and do what we can, outside of established educational institutions and traditional methods of study, to keep up our own professional development, advance the science and art that claim our chief attention; and, while still performing our routine duties, render a fuller service to our race and to our time.

PYELITIS FROM THE STANDPOINT OF THE UROLOGIST*

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"Pyelitis," properly termed mild pyelonephritis, is to be considered in this symposium as designating the non-suppurative types of pyelonephritis. The subject is so great, and the time allotted so limited, that discussion of suppurative pyelonephritis is prohibitive beyond this simple mention.

The term "Pyelitis" originally meant renal pelvic inflammation and at the present is clinically designated as an infection chiefly involving the renal pelvis without marked functional impairment. It is clearly illogical to assume an infection of the kidney pelvis itself, without involvement of the adjacent kidney substance, and at the present time, that the latter exists is an accepted fact. Likewise, the ureter and bladder are subjected to the same pathological possibilities. Therefore the severity of infection determines a rather elastic line of demarcation between the misnomer "Pyelitis" and true pyelonephritis.

A pathological division is made according to the severity of the inflammatory reaction, and is usually dependent upon the virulence and type of the infecting organisms as shown by Cabot and Crabtree in 1916. They pointed out that the milder types without renal suppuration were of bacillary origin, whereas, the more fulminating cases were associated solely with pyogenic cocci. In the uncomplicated acute transient pyelitis the parenchyma appears grossly normal; microscopically the lesions are limited to the mucosa and submusoa, consisting of an infiltration of leukocytes accompanied by hyperemia and edema, therefore resulting in little permanent damage. In the long-continued or re-current pyelitis the pathology is found to be more pronounced, with the inflammatory reactions extending through the medulla and cortex to the capsule, with miscroscopic changes showing a universal deposit of lymphocytes and a submucosal increase of fibrous tissue. The calyces then become distorted, lose their normal sharpness of outline, thereby taking on a characteristic appearance which is interpreted as a valuable pyelographic sign that infection has existed. The same mucosal and submucosal changes take place in the pelvis or ureter, leaving ample excuse for the formation of subsequent pathology not intended within the realm of this discussion.

The etiological factors of pyelonephritis may be most conveniently grouped according to the avenue of infection, that is [1]descending, and [2]ascending. Both are of equal importance, the former being more important from the standpoint of the internist, the latter a urological problem. Infection of the urinary tract through lymphatic drainage from the surrounding organs, has never been definitely proven, and from an anatomical and physiological point of view, seems improbable. Ascending infections are those progressing against the normal secretory stream and may advance [1]by the duct lumen; [2]by upward extension along the lymphatics of the ureter; [3]by the blood stream; or [4]by a combination of lymphatics and blood stream.

So far as the urologist is concerned, the advancement by way of the lumen is of the greatest importance. This may take place by direct advancement along the mucosa, by reflux of infected urine, by the progression along the ureteral lymphatics, or by a combinatino of the three. Urinary reflux and reverse peristalsis of the ureter have been repeatedly proven in these cases. There are numerous cases recorded of ureteral reverse peristalsis, and many of us here have observed by a series of x-ray plates the migration of a stone up the ureter. However, no one has proven reverse ureteral peristalsis existing without obstruction of the ureter at a lower point; therefore, in acute pyelitis it becomes necessary to offer an explanation either based upon an inflammatory obstruction with reverse peristalsis or a direct invasion along the ureteral lymphatics or mucosa. The extension by way of the ureteral lymphatics is not entirely accepted as a regular occurrence; although proven in several

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instances. It is complicated by the fact that intramural lymphatic inflammations tend to obstruct the duct lumen, thereby predisposing the above ureter and pelvis to reverse peristaltic infection. There is another explanation of ascending infection that is entirely plausible and in accordance with bacteriological findings and clinical cures. The internist has proved that focci of infection cause pyelitis and that their removal produces a cure. Yet it is true that the colon bacilli or bacteria inhabiting the intestinal tract are present in a great percentage of cases.

I, personally, believe the colon bacilli and any other intestinal flora are secondary ascending invaders of mucous membrane previously prepared by descending infection.

To substantiate this opinion I report the bacteriology of several authors, and a series of my own cases as known to be without obstruction anywhere in the urinary tract.

Rowan has reported a case of pyelitis due to the entomoeba histolitica. Riding reports several due to Morgan's No. 1 bacillus; and Colalb, the dysentery bacillus of Flexner. Several authors have isolated a pure culture of gonococcus from the kidney and kidney pelvis. Such rare renal infections must be regarded as of the ascending type. Bumpus, Paul, Rosenow, Zigler and Beckman have found B. Coli. and Staphylococci to be the predominating organisms; B. Coli always predominating particularly in the chronic cases. In a summary of 233 cases by Hellstrom, J.—Acta. Chir. Scandinavica—1924. Suppl. VI, 1—280 (Bib. 252 References).

	Men	Woman	Total
Staphylococcus—Only	18	22	40
Staphylococcus and B. Coli	5	19	24
Staphylococcus and Streptococci		1	1
B. Coli.—Only	13	120	133
B. Coli. and Streptococci		1	1
Streptococci—Only	2	4	6
Proteus Vulgarii		3	3
Sarcini		1	1
Unidentified Bacteria	1	10	11
Abacterial	9	4	13
Total	48	185	233

In this adult series the Bacillus Coli was found, in all, in 74 per cent; in pure culture, 61 per cent; Staphylococci, in all, 30 per cent, and in pure culture, 18.3 per cent.

In another series of children under the age of 15, B. Coli predominated in a much greater percentage. In no case, after the disappearance of the secondary invader, B. Coli, could the presence of other bacteria be demonstrated. These examinations were made by culture and we well know that examination by culture and microscope vary, because upon ordinary culture media the Colon Bacillus will predominate.

In my own series of sixty-five cases, I am sure that there existed no urinary obstruction. The bacteriology as reported upon blood Agar cultures by Dr. W. W. Williams is as follows:

	Men	Women	Total
B. Coli. only	3	36	39
B. Coli. and Staphylococci	3	10	13
B. Coli. and Gonococci		1	1
Staphylococci—Only	4	2	6
Staphylococci and Diphtheroid Bacillus		1	1
Streptococci—Only	1		1
Abacterial	2	2	4
Total	13	52	65

The B. Coli predominate, furnishing in all, 81.6 per cent; Staphylococci, in all, 30.8 per cent. The following reasons for the predominance of the Colon Bacillus are:

[1]The organism is always abundant in the intestinal flora.

[2]It reproduces faster and grown more vigorously upon artificial media than other organisms.

[3]Women with a shorter urethra and a closer proximity between the rectum and meatus, show a larger proportionate percentage of B. Coli infection than do the males.

We know that the normal mucous membrane has excellent protective powers against invasion by this organism. Simple ascending cystitis is so rare, that, where no obstruction exists there is little danger to instrumentation unless the wall is subjected to submucosal trauma. I have never observed an infection of the renal pelvis of bacillary origin secondary to ureteral catheterization when the mucous membrane was normal. On the other hand, cases showing a pure staphylococcus infection at first, have a Colon Bacillus super-imposed after the first catheterization. We see case after case of chronic Colon Bacillus Pyelitis during clinical exacerbations and the bacteriologist is unable to demonstrate other organisms.

After a careful medical examination and removal of the focci, the urine becomes sterile without further urological treatment, thereby proving that the additional infection existed.

The diagnosis of pyelitis rarely requires cystoscopic aid unless it is necessary to differentiate from a complicating intra- abdominal acuteness. The onset is sudden with chills, malaise, and wide variations in the temperature curve. There is usually an accompanying cystitis of variable intensity. The kidney is tender to pressure or ballottement. The catheterized urine shows pus, blood, and usually the Colon Bacillus.

The treatment of pyelitis, as recorded in the literature, is variable. In 1923 Chetwood advocated the use of neo-salvarsan in those cases showing staphylococcal growth. J. S. Davis in 1923 advised transfusion of whole blood. D. M. Cowie, a pediatrician, in 1922 used foreign protein. A. Sach of Heidelburg and G. Daniels, both advocate a low portion diet, urotropin and repeated high enemas. Several advocate vaccine therapy. Bumpus and H. Young in 1925 advocated intravenous mercurochrome. All these procedures have been tried but are not specific enough to warrant their use as a regular procedure.

Eisendrath in 1926 favored the use of indwelling ureteral catheters in the more severe cases. This method is gaining in popularity and is frequently essential in the severe cases with high temperature. It likewise is of great value in the treatment of pyelitis of pregnancy, such cases normally having a hydroureter. The indwelling catheter is left in place in these cases for varying periods of time. There is no serious objection to their introduction or presence. Eisendrath frequently left them in place for two to fourteen days and later could demonstrate no permanent damage to the ureter that was not a result of infection rather than instrumentation. It makes little difference whether they are irrigated or not, but the consensus of opinion is that the instillation of some antiseptic solution is beneficial.

In acute cases the treatment is nearly always medical and should be controlled by the internist. Cystoscopy and ureteral catheterization becomes necessary only to produce a more adequate drainage and is therefore indicated:

[1]When the chills are recurrent and temperature remains or returns frequently, above 104°.

[2]When the fever lasts beyond a period of four to eight days without clinical improvement.

[3]Any obstruction causing true "renal colic."

[4]In all moderately severe cases complicated by pregnancy.

[5]In chronic or recurrent cases after all primary focci or infection have been removed.

I have observed most excellent results by treating acute cases with urotropin administered by both the oral and the intravenous routes. By giving it intravenously one produces a greater concentration without reduction of the fluids intake. Large doses over a shorter period of time certainly decreases the severity of an attack. Immediately upon making the diagnosis, the following method of treatment is begun.

(1) Rest in bed until temperature is normal for forty-eight hours. It is essential that these cases do not get up too soon or a recurrence of fever is the rule.

(2) A low protein and salt-free diet.

(3) Urotropin administered orally, grs. 30 to 60 daily, using acid sodium phosphate to keep the urine mildly acid.

(4) Urotropin grs. 31 intravenously once a day.

(5) Keep the bowels open by using enemas.

In cases where albumin is moderate these large doses of urotropin are used with great caution. Alkalinization is the safer where the kidney damage is marked. For the bladder discomfort I use local instillations of 10 per cent silvol and codeine by mouth. These rarely need be continued after the first forty-eight hours.

Conclusion

"Pyelitis," or a mild pyelonephritis is caused primarily by bacterial emboli from a distant focci. The infection then progresses from above downward and is usually

complicated by an ascending secondary invader, the B. Coli. Two series of cases have been submitted to substantiate this belief.

Pathological changes occur that are dependent upon the duration and extent of the infection.

It is the writer's belief that with early recognition and elimination of foci of infection, chronic pyelitis will become a less common clinical entity and cystoscopy less frequently found necessary for permanent relief.

BIBLIOGRAPHY

Pawan, J. L.: Ann. Tropical Med. June 1926, XX, 199-200.

Calalb, G.: Cont. Rend. Hebd. Soc. dr. Biol. May 29, 1925, XCII, 1460-1461.

Riding, J.: Brit. Med. Jour. Jan. 29th, 1927, I, 183-184.

Hellstrom, J.: Acta Chir. Scandinavico, 1924, VI, 1-280 (Bibliography) of 252 ref.)

Bumpus, H. C., Jr.: [1]Arch. Int. Md. March, 1921, XXVII, 326-337. [2]Med. Clin. N. Am. Jan., 1925, VIII, No. 4, 1103-1107.

Rosenow, E. C.: J. Lab. and Clin. Med. 1921-22, VII, 707-722.

Picker, R.: Zietscher, J. Urol. Chir. 1922-23, XI, 86-92.

Zigler, M.: N. Y. St. J. Med. Feb. 1, 1927, XXVII, 124-126.

Helmholz, H. F.: J. Am. Med. Ass'n, Oct. 6, 1923, LXXXI, 1160-1163.

Kopp, R.: Deutsche Med. Woch. Oct. 22, 1926, LII, 1922.

Beckman: Zeitschr. J. Klin. Med. 1924, CI, 229-244.

Billings, F.: Arch. Int. Med. 1912, IX, 484-498.

Schaape, C.: Nederlandsch Tijdschr. V. June, 1925, LXIX, 2966-2969.

Eisendrath, D. N.: Ill. Med. Jour. Dec., 1926, L, 488-494.

Chetwood, C. H.: J. of Urol. Jan., 1923, IX, 87-90.

Davis, J. S.: Arch. Pediat. Oct., 1923, XL, 698-700.

Cowie, D. M.: Am. J. Dis. Child. Sept., 1922, XXIV, 179-185.

Daniels, G.: Deutsche Med. Woch. Dec. 8, 1922, XLVIII, 1642-1643.

Sack, A.: Munch. Med. Woch. Feb. 9, 1923, LXX, 173-174.

Braasch, Wm. F.: Jour. of Urol. Feb., 1927, XVII, 113-119.

Paul, H. E.: Jour. of Urol. 1923, IX, 345-362.

Schnieder, M.: Centralbe J. Bakteriol. Parasit. und Infekt, Nov., 1922, I Abt., LXXXIX, 22-23.

Goldberg, B.: Zeitschr J. Uro. 1913, VII, 447-475.

Chute, A. L.: Boston M. & S. J. April 30, 1908, CLVIII, 569-571.

Le Fur: Jour. d'Urol. 1922, XIV, 320.

Cabot, H., and Crabtree, E. G.: Boston Med. & Surg. Jour. 174-780—1916. Lancet Clinic, 1916, 115-96.

Hagner, F. R.: Surg. Gyn. & Obst. 1912, 15-510.

Hinman, F.: Nelson Loose-leaf Surgery.

PYELITIS IN CHILDREN*

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There are three diseases in childhood which are too commonly overlooked, improperly diagnosed or unintelligently treated. This tearful triad includes otitis media, cervical adenitis and pyelitis, and of the three pyelitis provides more than its share of grief to the physician. Which one of us has not been guilty of attributing a stomach upset, lack of appetite, vomiting or unexplained fever to such vague clinical nonentities as teething, over-feeding, or indigestion, when our little patient was found later to be suffering from pyelitis? The tardy diagnosis is finally made in the laboratory and explained, with all possible tact and ingenuity, at the bedside. If the child continues to have temperature for a long time, as not infrequently happens, these bedside explanations become increasingly difficult until another physician is finally called in to explain to the parents why Mary does not get well.

Pyelitis may occur at any age. In adults certain signs and symptoms referable to the urinary tract make its diagnosis relatively easy. During infancy there are few common signs except an unexplained fever, and even this may be lacking or inconspicuous, and there are few objective symptoms. For example:

Case 1. Baby R. P., weaned at two months, made excellent progress on artificial feeding up to the age of 4½ months when she had her first throat infection. Two weeks later the appetite and color were poor and pus was discovered in the urine. For the next three months the child gained slowly. There was little or no fever, but in spite of alkaline and acid treatment, the urine continued to show pus, albumen and some casts. Cystoscopy was refused.

In the newborn pyelitis is not extremely rare and is found about equally divided among the two sexes. In later infancy, childhood, and among adults, the incidence of pyelitis is at least twice as common among

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females. Kretchmer states that in his series, including all ages, 61 per cent were in females and 39 per cent in males. Other authorities limiting their series to children, have variously estimated the percentage among girls from 57 per cent (Kowitz) to 100 per cent (Escherich).

The etiology of pyelitis has been a controversial subject for many years and much experimental work has been done to determine whether the ascending route or the hematogenous route of infection is responsible for organisms reaching the kidney pelvis. Helmholz has shown that the kidney is an excellent filter for bacteria. He injected rabbits with virulent and avirulent colon bacilli, staphylococci and streptococci and chloroformed the animals at varying intervals. No bacteria appeared in the urine in four hours and only virulent staphylococci were found frequently after this time. Colon bacilli and streptococci were not regularly present in the urine even after twenty-four hours. Helmholz, however, in another series of experiments produced pyelitis in rabbits by both intravenous and intravesical injection of colon bacilli and it is generally believed that infection may occur in the human by either route. Obstruction at any point in the urinary tract predisposes to infection.

During recent years there has been a growing conviction in the minds of pediatrists that the relation between throat infections and pyelitis is of more than casual significance. Tonsilitis or acute epidemic throat infections are frequently accompanied by pyuria, but usually the pus disappears soon after the throat inflammation subsides. The following case is typical of this sequence.

CASE REPORTS

Case 2. Jacqueline H., age 21 months, had broncho-pneumonia at 7 months and again at 19 months, followed a month later by a severe attack of measles. On the fifth day of measles, otitis was discovered, and at the same time a specimen of urine revealed large numbers of pus cells in clumps. The ear was opened and four days later the urine was essentially normal.

Sometimes, however, children show repeated attacks of pyelitis following tonsil infection and the tonsil-adenoid operation is advised for no other reason.

Case 3. Baby S. B. had her first attack of pyelitis at 2 years, following an acute throat infection. The urine continued to show an abnormal number of pus cells but the child was not ill again for over a year when an attack of influenza precipitated a severe pyelitis lasting four weeks. Following this attack, the tonsils were removed and no further attacks of pyelitis have occurred.

Pyelitis following throat infections would presumably be of hematogenous origin and the infecting organism would be expected to be a streptococcus, unless lowered resistance following any illness might explain an ascending infection by the colon bacillus. Evidence that the streptococcus sometimes causes pyelitis by the hematogenous route, is furnished by the following case:

Case 4. Marie S., age 18 months, previously well except for pertussis at 8 months, became ill suddenly with temperature of 104°-106° and acute cervical adenitis. After 3 days of high fever abscesses developed on the forearm and lower leg. On admission to Children's Hospital the urine was loaded with pus and a culture of the urine showed streptococcus hemolyticus in pure culture. The multiple abscesses contained the same organism. In this instance, pyelitis was only one of the metastic complications of the hemolytic streptococcus infection.

Colon bacillus is, of course, the commonest invader of the kidney pelvis. Staphylococcus is the most virulent organism in pyelitis and is sometimes responsible for multiple abscesses or pyelonephritis. The bacilluria noted during typhoid fever is, of course, due to hematogenous infection, but pyelitis does not often develop. Occasionally, however, a pyuria during typhoid or paratyphoid fever may dominate the clinical picture for a time, as in the following case:

Case 5: Helen W., age 9 months, previously well, became suddenly ill with T. 104-105 and marked pallor. The urine was examined promptly and pus found in large quantity. In spite of urinary antiseptics the fever continued high and the patient was admitted to Children's Hospital. Urine culture found paratyphoid B. organism. The temperature continued above 102° and eight days after admission the patient developed bronchopneumonia and died on the second day of this complication.

Simple pyelitis, occurring after the age of 2 years, differs from the pyelitis of the diaper age, in that symptoms are apt to be present. These are pain in the lower abdomen, frequent and sometimes painful or burning urination and tenesmus. Thus, the diagnosis may be inferred before the urine is examined.

Pyelitis secondary to a stone in the urinary tract is not uncommon. These cases are apt to have pain in the abdomen, dysuria, hematuria, pollakiuria, or localizing symptoms,

but may be overlooked for weeks unless a roentgenogram is made to show the stone, or cystoscopy performed. A case of unusual interest is the following:

Case 6. D. S., age 4 years, was admitted to Colorado General Hospital complaining of intermittent attacks of frequent urination and bed wetting of one year's duration. The attacks became increasingly frequent and finally were accompanied by fever. The patient also complained of perineal pain caused by the acts of urinating or defecating. Physical examination was negative, except for abdominal tenderness, especially over the bladder, and excoriation about the vulva and rectum. X-ray showed a large bladder stone. This was removed from a supra-pubic incision and found to be a cystin calculus. Convalescence was stormy and blood transfusion finally required. The urine failed to clear of pus and cystoscopy and pyelography later demonstrated the presence of double ureters on each side, these congenital anomalies accounting for the continued pyuria. What relation the anomalous ureters may have had to the calculus formation is problematical. There was no history of familial cystinuria.

The lesson taught by this case is that pyelitis accompanied by any unusual symptoms or persisting for several weeks should be the occasion of thorough investigation by x-ray and cystoscope. The advent of the cystoscope, newer methods of pyelography and recent autopsy studies have brought new opportunities as well as new responsibilities to the physician who diagnoses pyelitis. His duty does not end with the finding of pus in the urine and the administration of fluid, alkalis, or hexamethylenamine for indefinite periods of time. He must anticipate the possibility of stasis in the urinary tract, due to strictnre or other anomaly, or to a calculus. Urine cultures should be made, together with frequent microscopic studies of the urine, and, if improvement is not noted in from four to eight weeks, recourse to thorough x-ray and cystoscopic study should be insisted upon. Campbell and Lyttle have recently reported upon a large series of infants and children studied at Bellvue Hospital. These men cystoscope from 6 to 10 babies each week. They have even found it possible to cystoscope a male patient ten weeks old! These authors found that some congenital anomaly of the genito-urinary tract is relatively common and that about 50 per cent of these anomalies are strictures of the ureter. Bigler, working on autopsy material at the Children's Memorial Hospital, Chicago, found some anomaly of the genito-urinary tract in 13 per cent of all cases.

It is folly to expect potassium citrate or urotropin to permanently cure pyelitis secondary to a congenital anomaly. Many of these cases may be relieved by dilatation and pelvic lavage. Thus, the rational treatment of pyelitis implies an understanding of the methods of infection, the types of infections, the limitations of medical treatment and the necessity of frequent co-operation with the urologist.

PYELITIS IN THE OBSTETRICAL AND GYNECOLOGICAL PATIENT*

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There has been of late wide spread interest among obstetricians and urologists concerning pyelitis in pregnancy. There is still a diversity of opinion, though recent investigation has brought forward new ideas regarding its primary etiological factors.

A few high lights in the early history of pyelitis in pregnancy are, that Peirre Rayer first called attention to the presence of inflammation in the renal pelvis during pregnancy, in 1841; that Cruvelhier, in 1843, emphasized the frequent occurrence of ureteral dilation during gestation; that Kaltenbach described the disease as a distinct clinical entity, in 1872; that Albarran, Bumm and Rovsing, independently, in 1899, stressed the importance of infection superimposed upon urinary stasis as the essential factor in the production of the disease.

Since the presentation of Opitz, in 1906, it has been quite generally accepted that the ureter, especially the right, is compressed between the brim of the pelvis and the pregnant uterus; that dilation and stasis follow, and that subsequent infection results as an ascending or blood borne invasion of bacteria.

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Recently, this popular theory has been subject to attack and is now largely abandoned; such a mechanical interference cannot be maintained in the early months of pregnancy, when many cases of pyelitis occur; frozen sections of pregnant women at term do not bear out the probability of ureteral pressure; ureteral catheterization seldom shows an interference at this point, and furthermore, the specific gravity of the uterus and that of the other abdominal organs is the same, making such an assumption incompatible with the laws of physics (De Lee).

Pugh, in 1927, emphasized the fact that the majority of his patients presenting pyelitis during pregnancy, offered a history of kidney infection in infancy. John T. Williams from a study of cases, considers that pyelitis in pregnancy is not a condition due directly to gestation; in the majority of cases at least, there is a pre-existing condition brought to a state of acute activity by pregnancy. Corbus and Danforth believe it fair to suppose that in some cases at least, a pathological condition existed before the onset of pregnancy, either a congenital or acquired obstruction to the urinary outlet.

The idea is quite prevalent that pyelitis in pregnancy is dependent upon a pre-existing pathological condition to the ureter. In association with swelling and congestion of the pelvic tissues consequent to gestation, there is little doubt that an old lesion would make itself manifest, but modern methods of examination, particularly pyelograms, show that the ureter is dilated in over 80 per cent of cases of pregnancy (Albarran Halstead, Kretchmer and Heany, Luchs, Crabtree and others). Duncan found in both primipara and multipara that the right ureter is dilated in 100 per cent and the left in 66.6 and 77 per cent respectively. This dilatation commences to become apparent as early as the sixth week to the third month of pregnancy.

An explanation for ureteral obstruction, so common as to be considered physiological, must be due to changes specific to pregnancy.

Hofbauer has recently studied histological sections of the ureter and trigonum vesicae obtained at autopsy. Pyelograms taken at different stages of pregnancy supplied additional information. His investigations are of such importance that they will be given rather detailed consideration.

He finds an hypertrophy and hyperplasia of connective tissue and muscle cells of the ureteral wall; the sheath is especially thickened; the thickening is most marked at the juxta vesical portion where the ureter lies in close contact with the bladder and anterior vaginal wall. The abdominal portion is less affected. The ureter gives the impression of a rigid, unyielding organ with a narrow lumen. Fibroblasts appear in the wall with a few mastcells and mononuclear invading cells in the interstices of the connective tissue.

Similar hypertrophic and hyperplastic changes are noted in the lower uterine segment during pregnancy, so that the ureteral thickening may be looked upon as a response to the stimulation of pregnancy.

Consistent with the specific structural changes noted in the lower end of the ureter, there occurs during pregnancy, a definite thickening of the trigonal muscle, from the inter ureteral ridge to the vesico urethral orifice. There is condensation of connective tissue and an increase of elastic fibers, so that the trigone becomes converted into a dense and unyielding structure. There is an hypertrophy of the ureteral sphincter. This increase of muscle structure seems a part of the hypertrophy which the entire muscle structure of the pelvis is known to undergo during pregnancy.

Hofbauer concludes that the narrowing of the lumen of the lower portion of the ureter through hypertrophy of its wall, and especially the sheath, gives rise to constriction; this occlusion may be accentuated by engorgement of the vessels of the mucosa through congestion and oedema, factors which may render positive the hitherto potential obstruction of the ureter. Significant, too, as the result of the normal dextrorotation of the pregnant uterus, is the angulation of the right ureter at its distal end. The hypertrophy of the trigonum accounts

for the clinical phenomenon of residual urine in pregnant women.

Duncan of Montreal, presented a paper before the American Gynecological Society in Washington this year. He believes that specific changes are brought about by pregnancy which account for the almost constant finding of ureteral dilatation. He has already been quoted in this paper as finding the right ureter dilated in 100 per cent of cases. He noted, too, the thickening of the trigone described by Hofbauer, but believes that the increased blood supply to the uterus incident to pregnancy is the cause. By injecting the blood vessels of specimens he was able to demonstrate an interference to the ureter, with a consequent dilation and stasis. Vascularity of the parametrium was manifest as early as the sixth week. Every case of pregnancy he considers, then, a potential case of pyelitis.

There are three ways by which bacteria may reach the kidney; through the blood stream, the lymphatics, or by an ascending infection; the possibility of an ascending infection must be admitted, an abnormal patency of the ureteral opening has been demonstrated in many pregnant women while the presence of residual urine serves as an additional factor in facilitating this mechanism of infection. Of late, much more importance has been given to the hematogenous route with renal excretion of resorbed bacteria.

It must be recalled that an asymptomatic bacteriuria may be demonstrated in a large number of apparently normal women (Ahlbeck, Fellis, Koch and others). Such a condition may ante-date a pyelitis for years; for an invasion of the tissues to take place the organism must be of extreme virulence or it is possible that over distension of the kidney pelvis produces a lesion whereby an inflammation is set up.

Hofbauer has attacked the problem by another angle. He considers that individual variations in immunity are factors in the development of infection. There have been in recent years a number of observations with reference to an alteration in the equilibrium of the immunizing substances in pregnant women. For instances, a lowering and an instability of the opsonic index of the serum toward the tubercle bacillus (Koessler and Neuman). In pneumonia, influenza and measles (P. Bar), there is a lessened resistance as there is against infections in general.

Dr. Dresel of the Department of Bacteriology at Johns Hopkins, at the instigation of Hofbauer, undertook studies of the opsonic index in pregnant women with different strains of b. coli. This was obtained by counting the polymorphonuclear leucocytes which contained bacteria and those which had no bacteria. In six out of fifty-three pregnant women, a marked decrease in the immune reaction of the serum could be noted as evidenced by a sharp fall in the opsonic index. These observations indicate that in about one out of every nine pregnant women, conditions are present which facilitate infection.

Colonic stasis has often been considered a factor, constipation is a common accompaniment of pregnancy. By far the majority of cases of pyelitis of pregnancy show the colon bacillus to be the offending organism. Von Franque has demonstrated a lymphatic connection between the ascending colon and the ureter. Colonic irrigations are a help in the treatment of pyelitis. Duncan, by partially tying the colon in rabbits, could produce a pyelitis on the side of the tied ureter. Further weight is added to this explanation as increased permeability of the intestinal wall is assumed during pregnancy; this is shown by the fact that particles of dye which are fed, appear within the connective tissue of the villus of the small intestine, whereas, in controls there is no invasion. Autopsy specimens of pregnant women (Hofbauer) show a loosening and oedema of the submucosa of the small intestine in a certain proportion of cases. Further, Arnold, as a result of a deficient secretion of gastric juice during pregnancy, shows that there may develop in the upper part of the small intestine, a bacterial flora resembling the coecal region.

Recently, a number of institutions have undertaken a late study of cases which had had a pyelitis during pregnancy. It was shown that a gradual return of the renal

pelvis and ureter toward normal took place in uncomplicated cases; a persistence of both bacteria and a marked dilation of the ureter was demonstrable in a considerable number, the ureter remaining dilated above the level of the parametrium. In an occasional one, as a result of long standing infection, stricture had resulted.

These studies show the inadequacy of our present treatment and the necessity for following up our cases by trying to overcome persistent infection, permanent obstruction, and by regaining the tone of the ureteral muscles.

* * *

A consideration of pyelitis in gynecological conditions would require a discussion of the presence of this lesion as a complication of the various pelvic disorders. There is not sufficient space to treat upon this subject, in other than a general way.

Cystitis is a frequent after complication to gynecological operations. When the bladder is dissected from its normal position there are circulatory disturbances, loss of tone and resistance. The necessity for frequent catheterization renders the likelihood of infections very great. The ascending route has not been proven by scientific experimentation though there is much clinical evidence of this type of invasion of the mucous membrane of the kidney pelvis.

One should not pass over the subject of post operative cystitis and urinary tract infection without mention of Curtis' observations; that those patients who do not require catheterization quickly return to normal without urinary tract infection. Patients who suffer from post operative distension or retention should be catheterized at intervals until they completely empty the bladder, as shown by daily tests for residual urine. If a patient has been subject to catheterization, it is dangerous to cease abruptly as there are usually several days during which some urine is retained, and contamination of this residual urine is the chief cause of post operative cystitis.

Important to the gynecologist is a knowledge of the frequency of a special type of ureteral stricture described by Hunner. It is more common than is generally recognized and results from a local inflammation of the ureteral wall, the source of the infection being, by the hematogenous route from some distant focus, from the tonsils, sinuses, teeth or gastro-intestinal tract, and possibly, also, the cervix. The strictures may be single or multiple, unilateral or bilateral. The most common locations are in the broad ligament, six centimeteres from the bladder, and at the bifurcation of the internal iliac vessels.

One would expect to encounter pyelitis frequently as a complication of acute gonorrheal salpingitis. The induration and swelling in the broad ligaments, however, rarely sufficiently involve the lower portion of these ligaments where the ureter passes through to the bladder.

Investigators are divided as to whether the gonococcus ever causes pyelitis. Graves states that an ascending infection seems improbable. If the cases of so-called gonorrheal pyelitis are authentic, it seems more likely that the gonococci reach the kidney by the hematogenous route, the localization of the disease in the kidney being analogous to gonorrheal infection of the joints.

It is probable that the late results of pelvic infection are a frequent source of ureteral distortion and compression; the thickening in the broad ligaments, involvement of the ureteral wall and traction would favor stasis.

Carcinoma of the cervix with involvement of the base of the broad ligament, as would be suspected, is frequently complicated by urinary tract infection. Radium treatment, too, may produce such a fibrosis of the proximal tissues, that ureteral stricture results.

We seldom see an interference with the ureter by compression of a uterine fibroid. One would suspect such a complication often; it may take place, as with any type of pelvic tumor, but is rarely encountered.

In gynecological conditions, infection by the hematogenous or descending route, is by far the more common. The pathogenic bacteria responsible for pyelitis are preeminently the coli communius. In acute cases, Kelly states that the staphylococcus, streptococcus, and proteus are more frequently present; in chronic cases it is usual to find the colon bacillus in pure culture.

PYELITIS FROM AN INTERNIST'S STANDPOINT*

R. W. ARNDT, M.D.
DENVER

If we take 1,000 cases of pyelonephritis and give (1) to the urologist those secondary to renal tract lesions, such as stone, ureteral stricture, mouth-of-bladder obstruction, etc., (2) to the gynecologist and obstetrician those occurring in pregnancy and the puerperium and (3) those arising in childhood to the pediatrician, there is still a respectable number due to an overwhelming of the kidney by an enormous number of virulent organisms, as in pyemia, typhoid fever, pneumonia, sepsis, sinus and tonsillar foci. Very often there is a combination of local renal lesion with a general or local infection elsewhere and often a patient with a definite localizable renal or ureteral cause will not recover until the extra-renal "muddying of the stream" is attended to. That is to say the urologist must avail himself of the help of the internist, the oral surgeon, the otolaryngologist, or whatever specialist has dominion over the infected area.

Organisms circulating in the blood may have, as Rosenow has shown, a selective affinity for renal tissue. It is not a part of renal activity to destroy bacteria by filtration. This is the function of the spleen, liver and lymphatic system. It is still an open question whether renal cells can eliminate live virulent bacteria without being injured thereby. There is experimental evidence on both sides. Minute transient lesions may be produced that have failed of recognition by the pathologist. A predisposing cause that lowers local resistance would enable these organisms to produce recognizable lesions. In many acute infections, as typhoid, pneumonia, etc., the specific organism has been recovered in the urine repeatedly without demonstrable lesion of the kidney afterwards. I am not so sure that tubercle bacilli may be excreted by the kidney without damage. Drs. Spitzer and Williams have done some outstanding work in this regard. The earlier opinion was that tubercle bacilli found in the urine did not necessarily mean renal tuberculosis. I am very suspicious that the constant presence of tubercle bacilli in the urine means renal tuberculosis even without any renal symptoms. The commonest, if not almost universal cause of renal infection, is the presence of organisms at a time when the local renal resistance to infection is reduced.

The variety of pyogenic organisms producing infections of the kidney is surprisingly limited. Colon bacilli and allied forms 85 per cent, staphylococci 10 per cent, streptococci and B. proteus vulgaria 5 per cent. There are other occasional infections either alone or in symbiosis. The gonococcus rarely invades the upper renal tract, despite its frequent invasion of the lower. Staphylococcal and streptococcal infections are more frequently fatal than those due to bacilli. Cocci are often primary invaders to be followed by the intrusion of bacilli. Not infrequently an acute coccal infection is followed by a chronic, milder, bacillary infection. Many of the patients by the time they come to us show a colon bacillus as the predominant organism. Invasions from within may be by way of the blood stream or of the lymphatics or by spread upwards or downwards of an existing infection. Occasionally there is a direct extension from a neighboring organ. For hematogenous infection of the kidney to occur live organisms must enter the blood from some infectious focus elsewhere in the body, must be present in overwhelming numbers and must be of unusual virulence or specificity or must find the natural resistance locally reduced by circulatory congestion or stasis or injury or back-pressure or some such local cause.

The urine occasionally gives misleading information, as when sterile urine is found. There may be ureteral obstruction. "Pyelitis" is not a good term. We do not find infection limited to the pelvis of the kidney. In fact pyelitis frequently follows upon an infected kidney. The symptomatology of renal infections is exceedingly diverse and, if sole reliance is placed upon it, is apt to

*Delivered before the fifty-eighth annual meeting of the Colorado State Medical Society, Colorado Springs, September 12, 1928.

lead one into error. Thus we know that a patient may have a kidney which has been entirely destroyed by infection and the history may be entirely free from any symptoms pointing to the kidney (John B. Murphy's case).

Why are acute renal tract infections accompanied by so high a fever, so pronounced a chill and so drenching a sweat? The same degree of pathology in an appendix for example, gives a much lower temperature and much less severe general reaction,—at least early appendicitis. If I can rule out a lateral sinus-thrombosis, an active, acute osteomyelitis, a malaria, a suppurating gall-bladder, the so-called Charcot's intermittent fever, and if I find the patient having a hard chill followed by a temperature of 105-105½ and occasionally 106 to be succeeded by a drenching sweat, I think of acute renal tract infection.

DISCUSSION

C. H. Boissevain, Colorado Springs: In the admirable papers we have just heard, it was brought out that the majority of all cases of pyelitis is caused by the colon bacillus. It has often struck me that the urine in cases of cystitis may be swarming with colon bacilli, although colon bacilli as a rule cannot use urine as a culture medium. Dr. Eric Webb and I have performed a number of experiments on the survival of colon bacilli in salt solutions to which urine may be compared, and we find briefly that the colon bacilli die quickly in all salt solutions except those that contain phosphates. In 1/15 mol. phosphate solution they remain alive indefinitely.

Dr. Waring suggested to me that these experiments might have some application on urinary pathology. For this reason I selected a urine in which the colon bacilli would not grow and found that the addition of phosphates to this urine transformed it into an excellent culture medium for the colon bacillus. The colon bacillus cannot use uric acid or ureum as a source of nitrogen or carbon, but it can use ammonia or creatinin as a source of nitrogen and carbonates as a source of carbon. The energy in this case is derived from the combustion of the ammonia. Since there is always an abundance of sources of nitrogen of carbon in the urine, the only element which is lacking to make a culture medium from the urine is phosphor. When the pyelitis is once established the conditions are changed through the presence of protein, etc. A rational therapy of pyelitis apparently requires to reduce the phosphate content of the urine to a minimum, which is the opposite of what is usually done by the administration of phosphates.

W. M. Spitzer, Denver: Three years ago I had the pleasure of addressing this audience on this subject of pyelitis. Last year I read a paper on infection of the urinary tract; it was not so entitled, but that is what it amounted to.

I must agree with the first speaker, as I did three years ago, that pyelitis per se, does not exist. I said then that there had to be a nephritis first, and that then the pyelitis appeared and that probably there would be a concomitant ureteritis. I also said that in all probability cystitis would go with this combination, and I wish to reiterate this and to state that the best name to apply to this condition is not "pyelitis" but infection of the upper urinary tract. Ofttimes infections of the lower urinary tract are the result of these upper urinary tracts and so perhaps the best name would be infection of the urinary tract. I do not see, as I keep repeating, how, if pyelitis did exist by itself, we could make a differential diagnosis between it and pyelo-nephritis. One of the authors attempts to name a mild attack of infection of the urinary tract "pyelitis" and to call a more severe attack "pyelo-nephritis," and I do not see how this is possible, because something which is mild today may become severe tomorrow and something which is severe today may become mild tomorrow. We have all seen that occur in infections of the urinary tract. These infections, therefore, should then be called infection of the urinary tract, evidently the proper anatomic and pathologic name, and treated as such. If an acute condition can be made to subside, by itself, so much the better; one must not wait too long, however. As I said a few years ago, if the attack does not subside promptly a catheter must be inserted through the diseased ureter into the diseased pelvis and drainage established. If one wishes to, lavage of the kidney may be added to this. Then, this failing, a catheter must be inserted through this diseased ureter and left in situ; if this does not work, to the undoing of the fever and the sickness, one is probably dealing with multiple abscesses of the kidney, the cause of which may be streptococcus, staphylococcus, colon bacillus, or whatnot, and it makes very little difference. Just as high a temperature can occur with a colon bacillus as with streptococcus, if there be a lack of drainage. I do not know how the colon bacillus, the most common offender, infects this upper urinary tract. As a general rule these infections are hematogenous, but they may be ascending infections either by way of the lumen of the urinary tract from the bladder, or via the lymphatics. We have all seen colored solutions in the bladder or pyelographic media run up the ureter to the kidney pelvis. We know, therefore, that ascending infections must occur. It is not necessary to have obstruction in the ureter to have infection in the kidney. I tried to say last year that the obstruction in the ureter is only part of the urinary infection, and that ureteritis can be and is a part of the general hematogenous infection of the kidney, its pelvis, the ureter, and the bladder. And when infection occurs, such infection may result in obstruction in the ureter with perhaps no dilation of the kidney pelvis above. Or perhaps no dilatation of the kidney pelvis with apparent dilatation of the ureter. Or perhaps dilatation of both the ureter and kidney pelvis. Or perhaps in what is known as atrophic pyelo-nephritis with contracture of the calices, pelvis, and ureter, or any of these. If one will examine the urine in these infections microscopically, instead of making cultures, the colon bacillus will rarely be found to be absent despite what other organisms may be present.

The strange thing to me was what Dr. Boissevain said. He said that by adding phosphates to the normal urine one could grow colon bacilli better. I always thought that colon bacilli had to grow in an acid medium, and unless these phosphates were acid, I was under the impression that the colon bacillus growth would be prevented.

I wish to express my admiration and appreciа-

tion of the work of Hofbrau, which work you have heard of here this afternoon. Pyelitis of pregnancy is extremely common. It has been demonstrated recently in numerous quarters that very few pregnant women's urines are sterile, if any. To put it mildly, it is extremely common to find infection in the pregnant woman's urine whether she has or has not any sign of pyelitis. Hofbrau has demonstrated that fibrosis occurs at the lower end of the ureter as well as a muscular hypertrophy during pregnancy and that this actually causes a contraction of the ureter, which creates an hydronephrosis above it. So, with the increase of fibrous tissue in the lower end of the ureter, which is normally very narrow, combined with infection of the urine, the wonder is not that pyelitis in pregnancy is so common, but that it does not exist in every case of pregnancy.

I want to correct an impression that was perhaps given unintentionally by Dr. Forbes. He says that Hemholtz showed that bacilli injected in the blood stream appeared in the urine in four hours. This is correct, but Hemholtz also demonstrated that in every case where these micro-organisms appeared in the urine, the kidney was damaged. And that is the reason why it took four hours for the micro-organisms to appear in the urine, namely, it took four hours for the damage to be sufficient to permit the passage of these bacilli. In our work, with the tubercle bacilli, we have shown the same thing and I think it is generally accepted that whenever you find tubercule bacilli or any other sort of micro-organism in the urine, there is damage to the urinary tract before such organisms appear. What is of more importance, however, is that one may find sterile urine in persons with much infection of the urinary tract. Stones are sometimes present without demonstrable micro-organisms or pus or blood. And so there are ofttimes infections of the kidney without the presence of micro-organisms or of pus. As a matter of fact there is no one given symptom or any combination of symptoms which spell infection of the urinary tract. The only symptom may be vomiting or fever or something which would not lead one to the true diagnosis. I have often thought that much vomiting early in pregnancy might be traced to infection of the urinary tract. One thing is certain, and that is that if one intends to diagnose infection of the urinary tract by symptoms, he will often be fooled.

J. W. Amesse, Denver: Mr. President and members of the Society, I am sure that all of the older members of this association can look back with chagrin and dismay to their earlier years of practice to find how many cases of pyelitis in their young patients they missed, because after all, while pyelitis has been a recognized entity for nearly 100 years, it is only the last twenty years that its natural history has been so clarified that we can profit by it. We have not been any more to blame for overlooking it than our Southern confreres have in failing to recognize hook-worm disease or pellagra, although in daily contact with them.

I believe that Dr. Forbes has struck the key note in the management of this disorder in urging consultation with the urologist. We must exclude congenital anomalies of the urinary tract, such as stricture for example, and this can only be done through the use of pyelograms and proper instrumentation. If medical treatment continued intensively for a period of ten days or two weeks is not followed by a satisfactory amelioration of the symptoms and improvement in the urine, one is justified in consulting the urologist. Together they will accomplish more than either one can do separately. In this connection it is important to remember that students and nurses should be instructed in the proper methods of collecting specimens of urine from infants, especially females. As a matter of fact, the profession as a whole has been remiss in failing to recognize the value of repeated examinations of urine in young children suffering from fever of obscure causation. Similar negligence is shown in the examination of babies' stools which will frequently reveal the etiological factor. In the treatment of infants, we must have pyelitis in mind if we would do full justice to these little patients.

C. E. Edson, Denver: May I be pardoned for introducing into this interesting and very scientific discussion one word of simple medical treatment? According to all writers, I believe, there are two to eight days in which the general practitioner is allowed to carry the case; after that it belongs in the domain of some kind of a surgeon. During those forty-eight hours or more we can try our hand at it. The therapy of these cases is obvious in its broad and general lines. I would not think of adding anything to that discussion before this audience, but one of the symptoms which is giving the patient the most discomfort during that period is the frequency, the urgency of micturition, the painful irritation of the bladder. I want to give you a suggestion of one thing that you will find of great help in these cases, purely for symptomatic relief of these symptoms, and that is in addition to the water, the rest in bed, the use of tincture of hyoscyamine in half dram doses at intervals of two, three, four or six hours, according to the urgency.

H. T. Low, Pueblo: You can readily see we started out here to give a symposium of the oldfashioned disease of pyelitis, then we have changed it to pyelonephritis, and a little later to urinary tract infection. I think that the latter designation is proved by the voluminous discussions and by the showing by Dr. T. L. Howard of his Anomolies of the Urinary Tract. Discussing a disease per see, such as pyelitis, and making a diagnosis upon a patient who enters your office, are two different things. She does not have pyelitis or pyelonephritis written on her when she comes in, therefore in a discussion of this kind we must consider some of the other pathological diseases of the urinary tract. The fact that Dr. Forbes spoke of stones and tumors, and what not, in children, is sufficient evidence to warrant this statement. A child, from weeks, on up in age, is subject to every urological disease that the adult is, with the possible exception of pyelitis of pregnancy and the enlarged prostate. Therefore, as we go along in years studying the pathology in infections of the urinary tract we find these various pathological conditions existing. We might go back in these urinary infections in infancy and other pathological conditions as being the primary etiological factors in our cases of so-called pyelitis of pregnancy.

I believe with Dr. Spitzer and others that a pyelitis of pregnancy often has previous kidney infection. I also believe that it very often exists after pregnancy is terminated. The treatment of the disease while the woman is carrying on is not sufficient. The case should come back for weeks and weeks, and then at intervals for months, to determine whether the urine is sterile, whether her points of obstruction are removed. We know it is not due to pressure of the pregnant uterus. If it is due to a fibrous

or hypertrophied ureter at its lower end, as a rule there may be scar formation permanently, and we might have a permanent stricture. We know these women do go on and have subsequent attacks of pyelitis of pregnancy, in subsequent pregnancies, therefore we should be on the lookout for the definite cause. When a patient comes in with temperature and chills, etc., dilatation treatment is always indicated, after a period of palliative treatment. I do not believe urinary infection running high fever and chills should be put on so-called urinary antiseptics, but providing the heart will stand the administration of fluids; the administration of alkalies until that temperature is down, is much better. The treatment of pyelitis of pregnancy, when it does not respond to alkalies, forced fluids, rest and intermittant dilatation by ureteral catheter is primarily that of an indwelling catheter over a period of time, and that time all depends upon the obstruction in the lower ureter. You can leave the indwelling catheter in place as long as 24 days without any damage to the patient.

Dr. Wear (closing): I have very little to add. I am sorry that the discussion deviated from the subject Pyelitis. General urinary infection is too broad a subject to be considered under this terminology. It was the primary intention of the paper to discuss the milder pyelonephritis and to bring before the general practitioner the outstanding points during its course, and the importance of its recognition and treatment. Please then, let us remember that pyelitis or mild pyelonephritis, should not be discussed under such a broad field as "general urinary infection."

Dr. Forbes (closing): I want to thank Dr. Amesse for his discussion, and particularly for emphasizing the necessity of obtaining specimens from our little patients. It is perfectly true that many nurses and many physicians are not familiar with the common and easy methods of getting specimens. Perhaps some of you are familiar with a little device known as the Spicer urinal. It is a device which resembles the glass container for bird seed and can be strapped right over the vulva with a little adhesive. A clean specimen will be obtained in a short time. Of course, with the male child it is a simple matter to obtain a specimen.

Dr. Arndt (closing): Just two short points. Treat your patient and not a name of the disease. That is one. The other one is that some care is exercised in the use of the catheter, both operatively and after confinement.

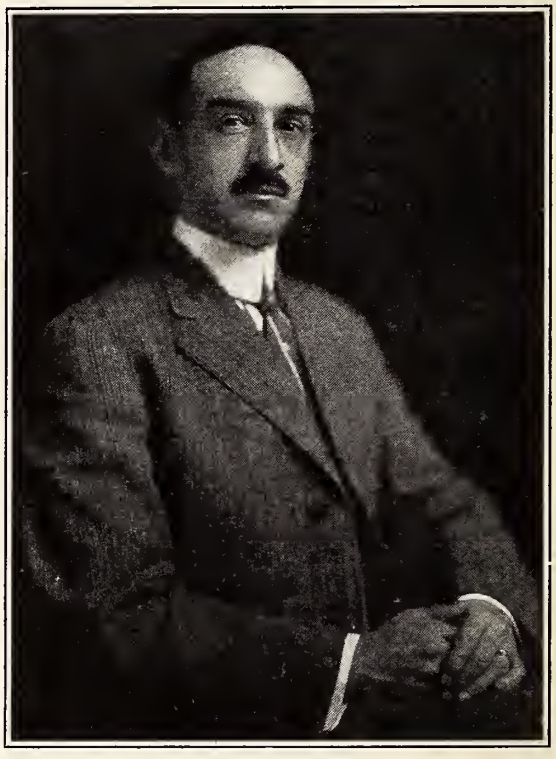
New Jersey Physicians Favor Mental Hygiene Program

At its annual meeting held in Bergen county, New Jersey, last month, the New Jersey State Medical Society went on record in favor of a program of health promotion for the ensuing year which has as its main features (1) an anti-diphtheria campaign aiming at the immunization of every child in the state, (2) the extension of the practice of getting an annual health examination among both adults and children, and (3) the development of mental-hygiene activities, particularly with reference to children, with a view to mitigation of the increasingly burdensome problem of mental and nervous diseases and associated social problems.—Mental Hygiene Bulletin.

NEWS NOTES

Dr. L. L. Herriman of Alamosa has been a recent visitor in Denver. He and Mrs. Herriman are spending the Christmas holidays with friends in the East.

The convention of the Western Surgical Association was held at the Hotel Drake in Chicago, December 14th and 15th. There was a large attendance. The Chicago members arranged a splendid program of entertainment especially for the wives of the visiting members. Colorado was represented by Dr. H. L. McKinnie of Colorado Springs who is an ex-president of the Association. Dr. Senger of Pueblo, president of the Colorado State Medical Society; Dr. Cuthbert Powell and Dr. C. F. Hegner of Denver were also present.



DR. FOSTER HARRINGTON CARY

Contributed by Dr. C. B. Ingraham

In the passing of Foster Harrington Cary on December 22, 1928, Denver has lost one of its most beloved dotors. He was a man dear to his patients and to his friends, respected and admired by his colleagues.

Dr. Cary was born in Jamaica Plains, New York, in 1874. He graduated from Harvard College and received his medical degree from the same university. He served his internship in the Boston-Lying-In Hospital. He practiced later in Worcester, Massachusetts, where he was actively associated with the Worcester Memorial and Worcester city hospitals. He soon acquired a very large obstetrical practice and was endeared to his patients and to his colleagues, as he was later, here in Denver. In the East he met Catherine Carter of Denver and they were married in 1911.

Because of ill health, Dr. Cary was forced to come West, giving up his practice and leaving staunch friends, to begin all over again here in

Denver. Through conscientious attention to his patients, through real worth and sound judgment, Dr. Cary soon established a large clientele here. He was conscientious, kind and patient, well-informed and an ideal obstetrician. It may be said, that though of strong character he had practically no enemies. His gentleness caused him to be loved by everyone, doctors and patients alike.

In 1918, Dr. Cary became associated with the faculty of the University of Colorado School of Medicine; he was later made associate professor of obstetrics. He was a good teacher and his sound work and interest were appreciated by his students. Failing in strength, he resigned from teaching in the Medical School in the early part of this fall. Many others would have stopped all active work, as his physical condition made it very difficult for him to attend to his practice, but he continued until a pulmonary hemorrhage occurred on November 3. Dr. Cary's desire, as he often expressed it, was "to die in harness." This he did, a martyr to his work. He was an ideal physician and gentleman.

Dr. Cary was associated with the staff of the Colorado General Hospital, the Denver General Hospital, Mercy Hospital, the Presbyterian, St. Luke's and St. Joseph's hospitals. He was a member of the Medical Society of the City and County of Denver, the Colorado State Medical Society, the American Medical Association, the American College of Surgeons and of the Clinical and Pathological Society of Denver.

He is survived by his wife, Catherine Carter Cary, and one daughter, Elizabeth.

MEDICAL SOCIETIES

COLORADO OPHTHALMOLOGICAL SOCIETY

Colorado Springs, Colorado, Oct. 27, 1928
Dr. E. M. Marbourg, Presiding

Bilateral Optic Neuritis

Dr. James M. Patterson, Colorado Springs, showed Mr. J. R., who came to Colorado Springs, ten days ago. He had been under the care of an ophthalmologist in St. Louis, during the past eight months, whom he consulted because of failing vision in both eyes. There was a history of a chancre in 1914, followed by antiluetic treatment. The patient has a daughter, seven years of age, whose blood Wassermann is negative. Three days prior to the time he noticed failing vision, he had drunk some "booze," which was followed by a severe headache of three days' duration. He had been a heavy drinker up to January, 1928, when he contracted pneumonia.

On October 26, 1928, the vision was O. D. 6/15 and O. S. counts fingers at three feet. Pupils react very slightly to light. Knee jerks normal; no Rhomberg. Urinalysis—sp. gr. 1017—acid, albumen 1 per cent, pus 2 per cent, numerous hyalin casts. Blood Wassermann negative.

Discussion. Dr. William H. Crisp believed that the appearance of the vitreous was due to a luetic disturbance and that neoarsphenamin and mixed treatment should be instituted.

Dr. Edward Jackson thought that the general disturbance of the whole retina and especially of the pigment epithelium indicated a causal factor, due to general involvement—probably luetic. The spinal fluid should be investigated and reliance placed on mercury and the iodides.

Dr. Donald H. O'Rourke raised the question in regard to the use of arsenicals in optic atrophy, and pointed out the differences of opinion that exist concerning this problem.

Dr. Edward Jackson felt that this question was not definitely settled, but he preferred the exhibition of mercury.

Dr. William H. Crisp felt that these cases should be treated vigorously by intravenous arsenical preparations and that the error was in not pushing the treatment.

Dr. Edward R. Neeper recited briefly the case histories of two of his patients, both of whom were luetic. Following vigorous antiluetic treatment with arsenicals, both developed pernicious anemia and death ensued. These experiences strengthened his preference for mercury.

He reported a third case where failing vision was thought to be due to lues. The Wassermann was positive and neoarsphenamin was being given in large doses. On the recognition and treatment of a positive ethmoid infection the vision began to improve immediately.

Dr. E. M. Marbourg mentioned a case where optic neuritis developed after arsenicals. Immediate improvement followed upon the vigorous administration of Sodium Thiosulphate, C. P.

Dr. J. J. Pattee advised the use of iron as an adjunct in the treatment of lues.

Vitreous Opacities of Traumatic Origin

Dr. James A. Patterson, Colorado Springs, showed Mr. G. P. who was first examined on June 4, 1928. One year ago a rock rolled and pinned his leg against a mine car. His leg was cut, but he was able to resume his work in a short time. Three weeks after this accident he noticed what he described as a floating mass before his left eye. At times this would clear considerably, but when he lost sleep or became nervous, it reappeared, now it never disappears. Vision O. D. 6/5 and O. S. light perception. The pupils react to light and in convergence. The right fundus is negative. The left fundus shows a large blotch of pigment down and out with seemingly some little absorption around it, this seems to be in line of 4:30 with the disc. Between this pigment patch and the disc, there seems to be some elevation, possibly, exudation, because the vessels are beneath it. There are two large masses of exudate in the anterior vitreous. These masses float around, changing shape and position when the eye is moved. The upper part of the disc is visible, the lower half is obscured by a whitish mass of exudation.

Discussion. Dr. William H. Crisp could not correlate the history of this case with the ophthalmoscopic picture, and questioned the probability of sudden blindness due to trauma.

Rupture of Choroid

Dr. Edgar C. Webb, Canon City, brought Master C. W., age 12, a healthy boy of normal weight. He had had the usual diseases of childhood. The vision tested by a school nurse in the spring of 1928, was recorded 20/20 for each eye. On September 11, 1928, while watching a ball game he was struck on the left side of the face by a base ball. Intense edema of the lids resulted, with a small hemorrhagic area at 12 o'clock, at the limbus. The patient was treated by a general practitioner until October 20th, when he was examined by Dr. Webb. Vision O. D. 20/20 and O. S. 10/200. The left cornea, iris, sclera and lens were normal, but the fundus showed a crescent shaped rupture of the choroid, starting midway between the nerve head and the macula and extending below the disc to the nasal side with another small tear through the macular region;

some old hemorrhage in the macular region; some pigmentation below and to temporal side of the nerve. The fundus was examined one week later, when much of the hemorrhage had absorbed, but the vision remained the same.

Discussion. Dr. J. J. Pattee recalled two cases of choroidal rupture, in which the streaks of rupture were vertical, and almost hair line in appearance. The vision remained good (20/40) in both cases, though the pupils were partially dilated. The one case was seen many years later, and the vision still remained 20/40.

Hairs on Palpebral Conjunctiva

Dr. Edward R. Neeper, Colorado Springs, showed five fine hairs which had grown on a small area of the conjunctival surface of an otherwise normal lower left lid, all of which were located about 2 mm. below its upper free margin, and near the center. These hairs were epilated with considerable difficulty, two on October 22nd and three on October 23, 1928. The eye had been red and painful for a few days previously. The lower 1/6th of the cornea appeared dull and hazy, there were many minute, elevated blebs of the corneal epithelium in this area. The area took an indefinite fluorescein stain. The eye was practically normal on October 24th and has been entirely normal since that date. The man, aged 60, had been a patient for twenty years. One hair had been removed from the same area for similar symptoms on January 17, 1928, again on February 6, 1928, and again on June 26, 1928, so that another crop might be expected within four months.

Because of the great difficulty encountered in discovering, seeing, and removing these fine, wet and clinging hairs, Dr. Neeper wondered if perhaps others have not encountered and possibly overlooked such a cause of a localized keratitis and even corneal ulceration.

Cycloplegia from Focal Infection of the Teeth

Dr. David A. Strickler, Denver, reported concerning Mrs. G. M., age 40, a seamstress, who was first seen on October 22, 1928. She complained that two days ago her vision blurred so that she was unable to see her work. On this morning her employer told her that the pupils were large. A history of headaches over a long period of time was elicited, definitely associated with close work. The vision O. D. and O. S. with correction was 20/20. With plus 2.25 sph. added to distant correction her near point was 28 cm. with each eye. She was quite positive that no drops had been used in the eyes save murine, and this from a bottle used on other occasions without any blurring of vision. The dropper used had never been used except for the murine; also she had not taken any medicine of any kind at any recent period.

An examination of the teeth showed seven badly decayed members in the upper maxilla, all dead but one. They were promptly extracted. Five days later with distant correction she read the .37 M type at 25 cm. She was told to take up her work two days later.

On November 8, she reported that she had had no difficulty since returning to work. In the absence of a mydriatic, or any interal medication; the bad condition of the teeth with early return to normal after their removal, it would seem justifiable to diagnosis the case one of paralysis of accommodation and mydriasis due to focal infection of dental origin.

The following references were cited:

Ball, in "Modern Ophthalmology," Vol. 11, page 1125, states, "Unilateral paresis (ciliary) may be caused by syphilis or by disease of the teeth." Amer. Encycl. of Ophth., Vol. V, page 3641, "Paralysis of accommodation may be caused by affection of the nervous system, infectious diseases and by intoxications. A very common cause of double paralysis of accommodation is diphtheria." Other causes mentioned are spinal disease, diabetes, mumps, tonsillitis, acquired syphilis, typhoid fever, various ptomaines, toxins, fish; meat poisoning may cause complete paralysis or paresis of the ciliary muscle.

De Schweinitz in "Diseases of the Eye," 10th edition, page 625, mentions in addition to the above, disease of the accessory sinuses, various focal infections, prolonged eye work.

DONALD H. O'ROURKE,
Secretary.

DELTA COUNTY

The regular meeting of the Delta County Medical Society was held in Delta on Nov. 27, 1928. A fine dinner was enjoyed at the Delta House at 6:30 and the meeting was held at the rooms of the Delta Clinic. The attendance was especially good.

Dr. C. E. Lockwood, president of the Montrose County Society, was a guest. Following the completion of business matters, Dr. Copeland of Hotchkiss presented a paper on "The Physician and the Dentist." A general discussion closed the meeting.

LAWRENCE L. HICK,
Secretary

WOMAN'S AUXILIARY NOTES

On Monday, November 19th, Denver unit gave a subscription luncheon and bridge at the Olin Hotel to regular and prospective members of the Auxiliary.

A delightful luncheon was served at 1 o'clock, after which bridge was enjoyed by the guests.

Over 100 attended, and much credit is due to Mrs. R. F. Maul for the very pleasant time.

Guests were received by Mrs. T. Mitchell Burns, president of Denver Auxiliary; Mrs. George Miel, president of the state; Mrs. George Lingenfelter, past president of Denver unit, and Mrs. F. P. Gengenbach, past president of the National Auxiliary.

COLORADO STATE MEDICAL SOCIETY ADDENDUM TO LIST OF MEMBERS

Through printer's error after correction of page proof the name of Emanual Friedman, Denver, Colorado, member of the Medical Society of the City and County of Denver, was omitted from the published list of members.

NOTICE

Dr. S. D. Van Meter, president of the American Association for the Study of Goiter, is anxious that Colorado physicians make a good showing in attendance at the next meeting which is to be held in Dayton, March 25, 26 and 27. Dr. E. R. Arn of that city is chairman of the Scientific Program Committee which in itself guarantees papers and clinics of rare excellence.

BOOK REVIEWS

Physical Diagnosis. By W. D. Rose, M.D., Associate Professor of Medicine in the University of Arkansas, Little Rock, Arkansas. Fifth Edition. Three Hundred Ten Illustrations and Three Color Plates. St. Louis: The C. V. Mosby Company, 1927. Price, $10.00.

This is a very thorough handbook of physical diagnosis. Three-fourths of the book is devoted to the chest.

In a book of this size the many subjects cannot be dwelled upon at great length, but the thing that impresses the reader is that the gist of each subject is presented and in a concise form. It is a very good text book for the student and a convenient and practical reference for the practitioner.

ARNOLD MINNIG.

The Heart in Modern Practice, Diagnosis and Treatment. By William Duncan Reid, A.B., M.D., Assistant Professor of Cardiology, Boston University, School of Medicine; Associate in Cardiology of the Evans Memorial; Cardiac Consultant to the Newton Hospital; Formerly Chief of Heart Clinic at the Boston Dispensary, Junior Assistant Visiting Physician and Member of the Heart Service at the Boston City Hospital, Assistant Visiting Physician to Out-Patients at the Massachusetts General Hospital. 81 Illustrations. Second Edition Revised and Enlarged. Philadelphia and London: J. P. Lippincott Company. 1928. Price, $6.00.

The first edition of this text book appeared in 1923. In the second edition an introductory Part I deals very clearly with cardiac anatomy and the physiology of the circulation. It appears unfortunate, however, that such a limited space is given to a consideration of the physiology of the capillary system. The methods and interpretation of blood pressure observations are outlined, this section being closed with the caution, "The hemodynamics of blood pressure are too subtle to be considered in an off-hand manner."

Graphic methods of examination are presented in a manner which make this an easily understood section without the error so frequently encountered in works of this type, of too great detail for the reader not especially conversant with electrocardiography. The omission of the mention of Einthoven's fundamental work seems a regretable oversight in the historical review of the electrocardiogram. Perhaps the weakest portion of this section is that on Roentgen examination. The use of illustrations and diagrams would have enhanced its value.

In the sections on heart disease excellent chapters on rheumatic heart disease, bacterial heart disease, the senescent heart, and the hypertensive heart are presented. The communicable character of rheumatic heart disease is emphasized. While there is nothing new, the subjects are well presented and the bibliography throughout indicates familiarity with the best literature on the subject.

In common with the present trend a considerable space (161 of 452 pages) is allocated to the functional conditions of the heart. This is one of the strongest sections and is well supplied with illustrations and descriptive diagrams.

In general the treatment of heart disease is conservatively presented, but the reviewer is somewhat surprised to read on page 373 "On cessation of the heart beats, artificial respiration by the usual methods should first be employed. If, after two to four minutes, no heart sounds can be heard, the abdomen should be opened by a high incision, and cardiac massage instituted." Save in the surgical accident, this would seem rather radical treatment in general practice.

In the concluding paragraph the author states "Sir William Osler is often quoted as saying that he who thoroughly knows syphilis knows all medicine; with almost the same justification it may be stated that he who knows all cardiology must be familiar with all medicine."

CLOUGH TURRELL BURNETT.

Practical Clinical Psychiatry for Students and Practitioners, by Edward A. Strecker, A.M., M.D,. Professor of Nervous and Mental Diseases, Jefferson Medical College, Philadelphia; Clinical Professor of Psychiatry and Mental Hygiene, Yale University; Medical Director, Pennsylvania Hospital, Department for Mental and Nervous Diseases; Director, Neuropsychiatric Clinic, Pennsylvania Hospital, Department for Sick and Injured; Attending Neurologist to the Pennsylvania, Jefferson, Philadelphia, Misericordia and Germantown Hospitals; Consulting Psychiatrist to the Children's Bureau, to Bryn Mawr College, to the U. S. Veterans' Bureau, etc., and Franklin G. Ebaugh, A.B., M.D., Professor of Psychiatry, University of Colorado Medical School; Director, Colorado Psychopathic Hospital; Consulting Physician Children's Hospital and National Jewish Hospital, Denver, Colorado; Formerly Director of the Neuro-Psychiatric Department, Philadelphia General Hospital; Clinical Professor of Psychiatry, Woman's Medical College, Philadelphia, and Instructor of Psychiatry at the Undergraduate and Graduate Schools of Medicine, University of Pennsylvania. Second Edition Enlarged and Revised. With Illustrations. Philadelphia: P. Blakiston's Son and Company, 1012 Walnut Street.

This book is clear and concise and up-to-date. The first chapters are on etiology, diagnosis, prognosis, treatment, classification and methods of examination. The diagrams and illustrations in these chapters are very helpful. The following chapters consist of brief descriptions of the different mental diseases with case reports illustrating the various conditions and discussions of these cases. This is a very excellent way of presenting the subject.

The authors are evidently impressed by the theories of Freud, but seem to be somewhat reserved and conservative in their views.

CYRUS L. PERSHING.

Physical Diagnosis. By Charles Phillips Emerson, A.B., M.D., Professor of Medicine, Indiana University School of Medicine; Author of Clinical Diagnosis. 324 Illustrations. Philadelphia and London: J. B. Lippincott Company. Price, $7.00.

This book on Physical Diagnosis, by Emerson, is above the average in size and value, of works on this important subject. It is larger, more complete, freer from typographical errors. Its many illustrations are practically all original with the author. Dr. Emerson, not only in his present position, but his affiliation with Johns Hopkins, gave him unusual opportunitiy to evaluate what is of worth in Physical Diagnosis.

He opens with a very interesting, and valuable as well, history of the evolution of this art. He introduces the specialties, eg: eye, skin, etc., only

as they bear on the subject. The chapters on the chest and heart are excellent.

The student, general practitioner and the internist will find much of interest and value in this complete work.

JAMES T. ELLIOTT, M.D.,
606 Metropolitan Bldg.

NEW BOOKS

The Medical Clinics of North America (Issued serially, one number every other month). Volume 12, number 3. (New York Number, November, 1928). Octavo of 334 pages and 64 illustrations. Per Clinic Year, July, 1928, to May, 1929. Paper, $12.00; Cloth, $16.00 net. Philadelphia and London: W. B. Saunders Company, 1928.

Problems in Surgery; University of Washington Graduate Medical Lectures for 1927. By George W. Crile, M.D., edited by Amy F. Rowland. Octavo volume of 171 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $4.00 net.

Studies in the Psychology of Sex. By Havelock Ellis. Volume VII. Eonism and other Supplementary Studies: F. A. Davis Company, Philadelphia, 1928.

Urology . By Edward L. Keyes, M.D., Ph.D., F. A. C. S., Professor of Urology, Cornell University Medical College; Urologist to St. Vincent's Hospital; Consulting Urologist to Bellevue and the Memorial Hospitals; etc. With One Hundred and Eighty-four Illustrations in the Text and Twenty Plates, Two of which are in color. New York and London: D. Appleton and Company, 1928.

Strictly Private! Being the Intimate Diary of a Medical Practitioner. By Dr. Maurice Chideckel. Bosfon, Massachusetts: The Stratford Company.

Partnerships, Combinations and Antagonisms in Disease. By Edward C. B. Ibotson, M.D. (Lond.), B.S. Fellow Royal Society of Medicine, London. Illustrated. Philadelphia: 1929. F. A. Davis Company. Price, $3.50.

A Text-Book of Pathology. By William G. MacCallum, M.D., Professor of Pathology and Bacteriology. Johns Hopkins University. Fourth Edition, thoroughly revised. Octavo volume of 1177 pages with 606 original illustrations. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $10.00 net.

An Introduction to Experimental Pharmacology. By Torald Sollman, M.D., Professor of Pharmacology and Materia Medica at Western Reserve University, Cleveland, and Paul J. Hanzlik, M.D., Professor of Pharmacology at Stanford University, San Francisco, Calif. Octavo volume of 321 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $4.25 net.

The Medical Clinics of North America. (Issued serially, one number every other month.) Volume XII, Number 11. (Nebraska University Number, September, 1928.) Octavo of 254 pages with 40 illustrations. Per Clinic year, July, 1928, to May, 1929. Paper, $12.00; Cloth, $16.00 net. Philadelphia and London: W. B. Saunders Company, 1928.

The Rockefeller Foundation. Annual Report 1927. The Rockefeller Foundation, 61 Broadway, New York.

Preventive Medicine. By Mark F. Boyd, M.D., C.P.H., Member of Regular Field Staff, International Health Division of Rockefeller Foundation; formerly Professor of Bacteriology and Preventive Medicine in the Medical Department of the University of Texas. Third Edition, Revised. Octavo volume of 475 pages with 151 illustrations. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $4.50 net.

Neurological Examination. An Exposition of Tests with Interpretation of Signs and Symptoms. By Charles A. McKendree, M.D., Associate, Department of Neurology, College of Physicians and Surgeons, Columbia University. With a foreword by Henry Alsop Riley, M.D. 12 mo. of 280 pages with 88 illustrations. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $3.25 net.

The Elements of the Science of Nutrition. By Graham Luck, Ph.D., Sc.D., Professor of Physiology at the Cornell University, Medical College, New York City. Fourth Edition, Reset. Octavo of 844 pages. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $7.00 net.

Regional Anesthesia. By Gaston Labat, M.D. Clinical Professor of Surgery, University and Bellevue Hospital Medical College, New York City, Laureate of the Faculty of Sciences, University of Montpelier; Laureate of the Faculty of Medicine, University of Paris; Formerly Special Lecturer on Regional Anesthesia; The Mayo Foundation, University of Minnesota. With a foreword by William J. Mayo, M.D. Second Edition, Revised. Octavo of 567 pages with 367 original illustrations. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $7.50.

Thrombo-Angiitis Obliterans—Clinical, Physiologic and Pathologic Studies. By George E. Brown, M.D., and Edgar V. Allen, M.D., Division of Medicine. Mayo Clinic, Collaborating in Pathology with Howard R. Mahorner, M.D., Fellow in Surgery, The Mayo Foundation. 12 mo. of 219 pages with 62 illustrations. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $3.00 net.

Rules for Recovery from Pulmonary Tuberculosis. A. Layman's Handbook of Treatment. By Lawrason Brown, M.D. Fifth Edition, Thoroughly Revised. Lea & Febiger: Philadelphia and New York. 1928.

Criteria for the Classification and Diagnosis of Heart Disease. By a Committee, Joseph H. Bainton, M.D., Robert L. Levy, M.D., W. C. Munly, M.D., M.C., U. S. A., Harold E. B. Pardee, M.D., Chairman. Appointed by the Heart Committee of the New York Tuberculosis and Health Association, Inc. Arranged in Conformity with the Nomenclature for Cardiac Diagnosis Approved by the American Heart Association. Paul B. Hoeber, Inc.; New York, 1928. Price, $1.50 net.

A Practical Medical Dictionary. By Thomas Lathrop Stedman, A.M., M.D., Editor of the "Twentieth Century Practice of Medicine" and of the "Reference Handbook of the Medical Sciences," Formerly Editor of the "Medical Record." Tenth Revised Edition. Illustrated. New York: William Wood & Company, 1928. Price, $7.50.

THE COLORADO STATE MEDICAL SOCIETY

(Incorporated November 1, 1888.)

OFFICERS 1928-1929

President, Samuel B. Childs, Denver.

President-elect, William Senger, Pueblo.

Vice-Presidents, 1st, W. M. Shultz, Central City; 2nd, T. R. Knowles, Colorado Springs; 3rd, F. E. Willett, Steamboat Springs; 4th, O. P. Shippey, Saguache.

Secretary, F. B. Stephenson, Denver.

Treasurer, L. W. Bortree, Colorado Springs.

Delegates to the American Medical Association: Senior, O. M. Gilbert, Boulder, term expires 1929; Alternate, B. B. Blotz, Rocky Ford, term expires 1929. Junior, J. W. Amesse, Denver, term expires 1930; Alternate, L. H. McKinnie, Colorado Springs, term expires 1930.

Councilors:

		Term expires
District 1.	Ella A. Mead, Greeley	1930
District 2.	G. P. Lingenfelter, Denver	1929
District 3.	Geo. D. Andrews, Walsenburg	1933
District 4.	W. W. Crook, Glenwood Springs	1931
District 5.	A. W. Robbins, Durango	1932

Constituent Societies, Times of Meeting, Secretaries

Arapahoe County—Last Monday of each month; secretary, B. G. Carson, Englewood.

Boulder County—Second Thursday; secretary, Margaret Johnson, Boulder.

Chaffee County—First Tuesday of each month; secretary, G. W. Larimer, Salida.

Delta County—Last Friday of each month; secretary, Lawrence L. Hick, Delta.

Denver County—First and third Tuesday of each month; secretary, O. S. Fowler, Denver.

El Paso County—Second Wednesday of each month; Secy., W. A. Campbell, Jr., Colo. Springs.

Fremont County—Fourth Monday of each month; secretary, Kon Wyatt, Canon City.

Garfield County—Last Thursday of each month; secretary, R. B. Porter, Glenwood Springs, Colo.

Huerfano County—Third Thursday of each month; secretary, J. F. Baca, Walsenburg, Colo.

Kit Carson County—Quarterly, first Monday of December, March, June and September; secretary, Wm. L. McBride, Seibert, Colo.

Lake County—First Thursday of each month; secretary, J. C. Strong, Leadville.

Larimer County—First Wednesday of each month; secretary, M. J. Stewart, Loveland.

Las Animas County—First Friday of each month; secretary, M. C. Albi, Trinidad.

Mesa County—First Tuesday of each month; secretary, A. G. Taylor, Grand Junction.

Montrose County—First Thursday of each month; secretary, J. A. Spring, Montrose.

Morgan County—Time of meeting (not reported); secretary, H. M. Hawthorn, Weldona.

Northeast Colorado—Second Thursday in each month; secretary, E. P. Hummel, Sterling.

Northwestern Colorado—Second Thursday of each month; secretary, F. J. Blackmer, Steamboat Springs; E. L. Morrow, Oak Creek.

Otero County—Second Thursday of each month; secretary, Geo. Sorensen, La Junta.

Prowers County—First Tuesday of each quarter; secretary, Geo. S. Williams. Lamar, Colo.

Pueblo County—First and third Tuesday of each month; secretary, J. R. Blalock, Pueblo.

San Juan Medical—Second Saturday, January, April, July and October; secretary, H. A. Lingenfelter, Durango.

San Luis Valley—Time of meeting (not reported); secretary, P. K. Dwyer, Alamosa.

Weld County—Third Monday of each month; secretary, H. W. Averill, Evans, Colo.

STANDING AND SPECIAL COMMITTEES

Committee on Scientific Program: J. J. Waring, chairman, Denver; E. D. Downing, Woodmen; Frank R. Spencer, Boulder.

Committee on Credentials: F. B. Stephenson, chairman, Denver; John P. McDonough, Gunnison; George M. Noonan, Walsenburg.

Committee on Public Policy: C. F. Kemper, chairman, Denver; Edward Jackson, Denver; Henry Sewall, Denver; John R. Espey, Trinidad; Edward F. Dean, Denver; N. S. Madler, Greeley; Crum Epler, Pueblo.

Committee on Publications: Charles S. Elder, chairman, Denver; C. S. Bluemel, Denver; George A. Moleen, Denver.

Auditing Committee: W. K. Reed, chairman, Boulder; O. P. Shippey, Saguache; Chas. J. Lowen, Denver.

Committee on Necrology: Philip Hillkowitz, chairman, Denver; W. B. Hardesty, Berthoud; C. H. Graves, Canon City.

Committee on Medical Education: S. Fosdick Jones, chairman, Denver; L. H. McKinnie, Colorado Springs; Chas. N. Meader, Denver.

Committee on Social Medicine: R. P. Forbes, chairman, Denver; J. R. McDonald, Jr., Denver; B. B. Blotz, Rocky Ford.

Committee on Medical Literature: W. A. Jayne, chairman, Denver; Gerald B. Webb, Colorado Springs; A. J. Markley, Denver.

Committee on Hospitals: Maurice Rees, chairman, Denver; O. S. Fowler, Denver; C. O. Giese, Colorado Springs.

Committee on Military Affairs: Colonel Paul C. Hutton, chairman, Denver; George P. Lingenfelter, Denver; John Bouslog, Denver.

Committee on Mental Hygiene: F. B. Ebaugh, chairman, Denver; C. S. Bluemel, Denver; Edward Delehanty, Denver; Philip Work, Denver; H. A. LaMoure, Pueblo; Frank T. Stevens, Colorado Springs.

Committee on Periodic Health Examination: C. E. Harris, chairman, Woodmen; F. M. Heller, Pueblo; J. B. Crouch, Colorado Springs.

Committee on Co-operation With State Pharmacal Association: H. W. Stuver, chairman, Denver; A. F. Erick, Delta; M. D. Brown, Denver.

Committee on Cost of Medical Care: Maurice Rees, chairman, Denver; James J. Waring, Denver; Frank R. Spencer, Boulder; P. O. Hanford, Colorado Springs; George H. Curfman, Salida.

Committee on Industrial Commission Fees: Frank W. Kenney, chairman, Denver; F. B. Stephenson, Denver; T. E. Beyer, Denver.

Committee on Selection of An Executive Secretary: The President, Secretary and Treasurer of the Society with the assistance of such members of the Society as the President deems advisable.

Committee on Finance: W. A. Jayne, chairman, Denver; C. F. Hegner, Denver; L. W. Bortree, Colorado Springs.

Curator of Exhibits: E. D. Downing, Woodmen.

Committee on Local Arrangements: N. A. Madler, chairman, Greeley, Colo.; C. B. Dyde, Greeley, Colo.; E. W. Knowles, Greeley, Colo.; W. F. Spalding, Greeley, Colo.

WYOMING MEDICINE

President, F. A. Mills, M.D., Powell — First Vice President, C. W. Jeffrey, Rawlins
President-Elect, J. L. Linn, M.D., Lander
Secretary, Earl Whedon, M.D., Sheridan — Treasurer, Evald Olson, M.D., Lovell
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Councilor, H. L. Harvey, Casper
Member of Medical Defense, Earl Whedon, M.D., Sheridan
Fred Horton, M.D., New Castle — George L. Strader, M.D., Cheyenne

EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

NEWS NOTES AND COMMENT

WHO IS HEALTH OFFICER?

The recent rule and regulations governing the control of communicable diseases as passed by the State Board of Health, Oct. 26, 1928, and given to the state by the State Health Officer under date of Nov. 9, 1928, deserves our editorial attention:

The rule is as follows: "When a physician in the course of his practice has been called into a case of communicable disease, and has placed reasonable restrictive quarantine measures against said case and the household in which said quarantine case is situated, then said quarantine measure placed by him shall have the same force and effect as though the quarantine had been placed by the legally constituted health officer."

We are willing to admit on the start that we believe the State Board of Health passed the above rule with the best of intentions, but the legal aspect is an entirely different question. It is not a question of good intentions.

In substance this rule attempts to place the responsibility of the quarantining upon the general doctor and relieves the health officer, either state or county, of the responsibility.

Such delegations of power cannot be legal as the State Board of Health is not vested with such authority. It does have the power to appoint county health officers and deputies whose duties are outlined by the statutes, but it does not have the power to make all the doctors of the state agents with the authority to detain and quarantine the people of the state without the consent of the doctors.

The law makes it the duty of every doctor, teacher, hotel proprietor, and every citizen when he discovers a contageous disease to report the same to the City, County and State Health Departments and it becomes the duty of these departments of health to follow out the provision of the law and the reasonable regulations of the State Board of Health and to enforce these rules and laws.

The recent unconstitutional rule is simply side-stepping by the Board of Health of its own plain duty and the physicians of the state will not take kindly to such buck passing.

County and state health officers are paid for their services and should measure up to their responsibilities—and not try to pass the buck.

A question of such importance should have been submitted to the attorney general of the state of Wyoming for an opinion before such an order was ever issued by the Board of Health.

To strengthen the laws should be the desire of the Board of Health rather than to pass a rule whose validity is in question. Certainly the co-operation of all the members of the medical profession is most important and we as doctors desire that every move made by the State Board of Health be legal beyond question as we all know how hard it is to get perfect co-operation by the people on questions of quarantine.

Let the Board of Health get a ruling from the attorney general before putting out every change in our health rules to be sure of its legality. E. W.

PRIVILEGED COMMUNICATIONS

Under the laws of most states there exists a personal relation between patients and the members of the medical profession unique in character and unlike the communications between other classes of society. In some states this same relation exists between people in general and their spiritual advisors.

Under the rulings of the courts a physician can refuse to testify if he or his patient objects concerning conditions discovered or communicated at the time of an examination or treatment of such patient.

The recent decision in Iowa in the case of State vs. Knight, 216 N. W. R., 104, brings out a point of law that all members of the medical profession should heed well and always remember. That point is, "whenever a communication is made in the presence of a third person it is not a privileged communication within the purview of the statute."

From the above it would seem that the presence of a third person, be that person related to either the patient or the physician or not, removes all the rights of privileged communications. This would undoubtedly include office assistants, nurses, etc., with such an interpretation of the law and, until such a decision is overruled by the higher courts, it behooves the medical profession to so protect itself by making such communications limited to the patient and his doctor. And it is certainly desirable that all other persons be excluded when matters of strictly privileged communications are considered. E. W.

NEWS ITEMS

Rawlins, Wyoming

Dr. and Mrs. E. A. Kell of Rawlins have returned after an absence of about six weeks from an eastern trip in which they were fortunate in not only visiting their son and many eastern friends, but were able to take in several of the best college football games; such as the Yale-Dartmouth, the Yale-Maryland, Yale-Princeton, and Yale-Harvard. Their son Elmer is attending Yale. Dr. Kell reports that they averaged 350 to 450 miles a day, their longest drive being 525 miles. The entire trip covered 6,853.

Dr. J. G. Wanner is now in New York taking post-graduate work.

The program committee have started work arranging the program for the Casper meeting, which will be June 24, 25. It is the plan of the committee to make this year's program largely a Wyoming meeting by Wyoming men. In other words, we are going to consider the diseases most common in Wyoming and only have a few outside guests and see how it will work.

Don't forget to send your dues for 1929 in at once. If the dues are not paid during the month of January, you lose your Medical Defense from December 31, 1928, until the time you pay them. It surely would be awfully tough to have a suit started against you, the action depending on some act you did or did not do during the few days your dues were not paid. Pay your 1929 dues today!

Sheridan County

Life is not made up of all sunshine, all happiness, but at times the sun is hidden by black clouds. They in turn pass away and the beautiful sunshine returns.

Such dark conditions make us appreciate the beauties of life and its joys.

Dr. C. E. Stevenson and family have recently been called upon to part with a loving wife and mother.

Mrs. Ida B. Stevenson was taken away from her active life, November 16, 1928. Besides her husband she leaves three children to mourn their loss.

Mrs. Stevenson was very active in club and lodge work and for sixteen years was the efficient secretary of Naomi Chapter of the Eastern Star. For years her home was one of the most beautiful in Sheridan, and where real western hospitality could be found.

The members of the State Medical Society extend to Dr. Stevenson and the other members of the family our heart-felt sympathy in their dark hours of trouble.

MINUTES OF THE REGULAR QUARTERLY MEETING NORTHWEST WYOMING MEDICAL SOCIETY, LOVELL, WYO., NOV. 8, 1928

Dinner was held at the Johnson Hotel with 8 members, 6 ladies and 1 visitor present.

The meeting was then held in Dr. Olson's office with the following members present:

Dr. C. E. Harris, Dr. W. W. Horsley, Dr. Evald Olson, Dr. R. C. Whitlock, Dr. P. J. Clark and Dr. J. W. Golden, Dr. W. A. Graham, Dr. F. A. Mills. Visitor, Dr. W. R. Gilmore of the Wyoming Tuberculosis Sanitarium at Basin.

In the absence of the president and vice president, Dr. F. A. Mills was chosen to preside.

Minutes of the last meeting were read, discussed and approved as read.

The election of officers for the ensuing year resulted as follows: For president, Dr. W. W. Horsley; for vice president, Dr. W. O. Gray; for secretary-treasurer, Dr. J. W. Gorder.

The appointment of councillors was deferred until a later date.

Dr. F. A. Mills, delegate to the Wyoming State Medical Society then gave a very excellent report of the meeting at Yellowstone Park last summer. He not only reviewed the proceedings of the House of Delegates, but also gave a resume of several of the good papers read at that meeting. In regard to legislative recommendations, he stated that an attempt would probably be made to pass an amendment to the workmen's compensation bill to increase the minimum fees allowed hospitals.

Dr. Mills' report was well made and showed that he was very much alive to his duties as delegate. A motion was made by Dr. Clark and seconded by Dr. Graham that a vote of thanks be extended Dr. Mills for this report. Carried.

An address on Tuberculosis then followed by the visitor, Dr. W. D. Gilmore. His talk showed much familiarity with the subject and it was well received by the Society.

Dr. Gilmore stated that he would be glad to hold a clinic on tuberculosis any time a few cases could be gotten together. He extended a very cordial invitation to the members to visit the Sanitarium.

A motion was duly made and seconded that the thanks of the Society be extended to Dr. Gilmore for his address. Carried. The president then expressed the thanks of the Society to Dr. Gilmore.

Motion was then made by Dr. Whitlock and seconded by Dr. Olson that a committee be appointed to draft a resolution or letter to the State Board of Health suggesting the advisability of requiring a physical examination of Mexican beet laborers by the sugar companies before they were brought into the state. After considerable discussion it was carried. The president appointed Dr. J. W. Gorder, Dr. C. E. Harris and Dr. S. L. Myre.

Dr. C. E. Harris then opened a round table discussion of Business Problems. Most of the members felt that co-operation in the collection of accounts could be greatly improved upon. This topic was fully discussed by every member present.

There being no further business before the meeting, it was adjourned.

F. A. MILLS,
Acting President.
J. W. GORDER,
Secy.-Treas.

The Ultimate Control of Tuberculosis

Tuberculosis is rapidly being eliminated as an important element in the mortality of the American people. The year 1928 will show the lowest death rate on record for this disease, probably not more than 70 per hundred thousand of population, which will be about 7 less than the figure for last year. This was the forecast made by Dr. Louis I. Dublin, statistician of the Metropolitan Life Insurance Company, speaking at the annual meeting of the New York City Tuberculosis and Health Conference at the Hotel Biltmore, Oct. 22, 1928.

No one thirty years ago, when the anti-tuberculosis movement was actively launched in America, would have dared to prophesy any such achievement as has actually occurred in the United States in this short interval. At that time, the death rate from tuberculosis was close to three times as high as it is now, and this disease was the first of the causes of death. But with the establishment of the National Tuberculosis Association and the launching of local societies all over the country, which, co-operating with the departments of health, inaugurated a definite policy of tuberculosis control, the mortality from the disease began to fall at a remarkably fast rate, which has not only continued, but accelerated its velocity with time. That is the situation today, and it gives good ground for a reliable forecast for ten years ahead. Speaking to this point, Dr. Dublin said that if the present economic prosperity and the activities of health departments and of the private welfare agencies against the disease were continued, it should be entirely possible to bring tuberculosis down from the fifth place which it now occupies to one of the relatively minor causes of death. He actually predicted that a rate of 40 per hundred thousand or less would be observed in 1937.

No one can fully realize what this drop in tuberculosis has meant in bettering the conditions of life of the American people. This year 140,000 persons are alive and well who would have died from tuberculosis had the rates of 1900 still prevailed. Many of these would have been young men with beginning families. Such lives saved mean so many less widows and orphans. And if we further remember that for every death prevented at least ten times as many open cases are prevented at the same time, we can very well understand why the American people are today enjoying unprecedented prosperity and a standard of life unequaled by that of any other country. By learning how to control tuberculosis we have prevented the greatest single factor in producing poverty and misery. The success of the tuberculosis campaign is the most outstanding example of the effectiveness of the general public health movement, and Dr. Dublin insisted that there was no reason why the work that had been launched should not be increased and carried on with even greater energy in order to bring about a successful termination of the campaign.—Metropolitan Life Insurance Company.

Causes of Deaths Among Jews

A study of causes of deaths among Jews in upstate New York during 1925 has recently been completed by J. V. DePorte, Ph.D., director, Division of Vital Statistics. As death certificates do not specify the racial stock or religion of the decedent, the investigation was limited to certificates of persons buried in Jewish cemeteries.

The results, as a rule, confirm those obtained by other investigators in various sections of the United States. In brief, the relative mortality from cancer, tuberculosis, acute and chronic nephritis and diseases of the digestive system was found to be lower among Jews than among the general population while that from diseases of the heart and diabetes was higher. Cerebral hemorrhage showed a somewhat higher proportion of deaths in the age group, 45-64 years, but in the next group, 65 years and over, it was lower.

The main reason for the study was to direct attention to the importance of quantitative studies of vital statistics, not only of Jews, but of other racial stocks, while the necessary data can still be secured.

Further details, including a discussion of previous investigations on the subject, will be found in the original article which was published in the New York State Medical Journal for October 1, 1928. Reprints will be supplied by the author to those interested as long as the limited supply lasts.—Health News.

Who Are the Victims of Pellagra

Children 2 to 15 years of age whose families have too small incomes to give them enough of the right kind of food—these are the favorite victims of pellagra, says the report of the U. S. Public Health Service on the findings of the recent study of endemic pellagra in certain mill villages of South Carolina. Sanitary conditions did not seem to have any consistent influence on the prevalence of the disease, but its fluctuations from year to year appear to have been bound up with fluctuations in economic conditions.—Children's Bureau.

Colorado Medicine

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EDITORIAL NOTES AND COMMENT

COST OF MEDICAL CARE

Answer Your Questionnaires

It is believed that great enlightenment will result from the finished work of the Committee on the Cost of Medical Care. We have reason to expect that the physician will be acquitted of the charge that his fees are a largely important element in the present day high cost of being sick. We know that aside from the increased service which he is able to give today in laboratory and special lines and which, of course, cannot be given gratis, there has been no increase in the doctor's remuneration at all commensurate with the advance of labor wages and salaries generally. The public at large meets the depreciated dollar dilemma with a proportionately greater number of dollars, while the physician for the most part lives on the same old fees.

The five year program of this national committee requires systematic research and delving into every phase of life which in any way has a connection with sickness. The committee, headed by Dr. Ray Lyman Wilbur, is composed of members of the medical profession, both specialists and general practitioners, economists, hospital heads, statesmen, educators, philanthropists and publicists, all men of experience and many of them trained in investigation of economic problems. A corps of assistants is already organized and working.

One item of investigation will be the economic side of the doctor's life. His capital investment, taking in the cost of his initial education, his subsequent medical education, his post-graduate expense and his office equipment, are one thing. Another is the financial requirements made on him as to his mode of life and practice, such as his style of living, his transportation expense and his office overhead. The third sub-item is his income.

The American Medical Association has agreed to undertake this one line of investigation for the committee and expects to carry it on by a system of questionnaires. These will be sent to at least 25,000 physicians scattered over the United States and selected at random, and are about ready for distribution. The questionnaires are to be returned anonymously. Every physician who receives one of these blanks should realize the need of giving it prompt and considerate attention. This is a survey of the profession by the profession and for the profession, and since there will be no name signed to the returned questionnaire, there need be no fear of publicity as to one's personal affairs.

You may be one of the 25,000. The American Medical Association beseeches your earnest co-operation in a matter of importance to you. F. B. S.

PENDING LEGISLATION

The Twenty-seventh General Assembly of Colorado is now in session. What this body of lawmakers does is a matter of concern to every citizen of the state. What laws it may pass or amend touching matters of health and medical practice, is of particular concern to physicians. If this concern is born of selfishness—a desire for class legislation

—it should "die a-borning"; but if it springs from that altruism which has so characterized the medical profession of the past, it deserves the most considerate attention on the part of our legislators.

Among the measures which have been proposed is a bill to amend the law governing privileged conversation in cases where physicians are sued for malpractice. Under the law as amended, facts ascertained by a physician in the regular care of a patient, may be presented as evidence in case a physician is sued as mentioned above. While this amendment is justified both by reason and precedent in other states, and while we believe it should be enacted, no common nor wide spread injustice will be done if it fails to become a law.

A bill has been presented providing for a separate Board of Chiropractic Examiners for licensing chiropractors. Among other things the bill redefines chiropractic as "the science that teaches health in anatomic relation, and disease or abnormality in anatomic disrelation, and the art of restoring anatomic relation by a process of treatment as now or hereafter may be taught by leading chiropractic schools and colleges." Some latitude indeed!

This lengthy bill is filled with jokers and ambiguities. For example, while it is contended that it will raise the standards of practitioners by increasing the educational requirements, these prechiropractic requirements are definitely stipulated to be a high school education "or its equivalent." The Board will undoubtedy be the judge of the equivalent. It also provides that chiropractors shall not use drugs nor do major surgery. The implication is clear that minor surgery is permitted, and that the Board is authorized to adjudge what constitutes major surgery to a chiropractor. It is also contended that such a Board would be a better judge of chiropractic fitness than the present Board of medical doctors. The present Board is not composed of medical doctors only. The new Board would examine applicants on the following subjects: Anatomy, Physiology, Symptomatology, Pathology, Diagnosis, and the Science and Art of Chiropractic. If the desire is genuine to have chiropractors proficient in these subjects, it might be pointed out that, with the exception of the Science and Art of Chiropractic, applicants may be examined by the present Board on these very subjects mentioned. Anatomy is anatomy whether it is in Davenport or Denver, just as geography is geography or arithmetic is arithmetic. The exception of the "Science and Art of Chiropractic" can hardly be considered a weighty omission when it is recalled that no state institution nor well endowed college of America or any other civilized land includes chiropractic among its applied sciences. It seems perfectly apparent to us that the underlying motive of this bill is to release so called "Doctors" upon the public up through the cellar of political manipulation rather than out through the front door of accepted scientific knowledge. The present law of licensing chiropractors without examination, is bad enough, only to be endured until public sentiment requires the passage of a Basic Science Law. Since no injustice is being done these pseudo-scientists at the present time, such a Board seems as needless as the ambiguous bill is absurd. It is our opinion that more than a thousand physicians in Colorado condemn this bill as inimical to the public good.

A bill has been proposed for the annual registration of physicians. The proposed registration fee is five dollars. Arguments for annual registration may be found in another part of this Journal. Other states have found it possible to execute the law on a much lower fee. Why should we not profit by this experience, if indeed we want the law at all? The House of Delegates has more than once advocated this measure in principle , without consideration of the amount of fee. This is a matter concerning which physicians should express their wishes to their legislators at once, as pressure for its passage or defeat or any modification of fee must come from physicians throughout the state. There is no doubt that there is merit in the proposal, but it may be wise to postpone its passage or make the fee more nearly nominal.

Three other bills have been presented obviously of cultist inspiration. We are informed that one of these would make the vaccination of school children optional with the parent; another would prevent medical and dental examinations as authorized by certain school boards; still another aims its shaft at "serums," apparently intending to prevent the prophylactic use of toxin-antitoxin and anti-scarlet fever serum in schools as public health measures. The supporters of these bills will undoubtedly masquerade under the much overused banner of personal liberty and throw up a smoke screen of the "horrors of serum poisons" which do not exist. They are all pernicious bills and deserve no consideration. The medical profession has always opposed and will continue to oppose the principle underlying such backward legislation.

There is great danger, however, that many of us will dismiss this pending legislation as none of our business. But merely because we are better informed in these matters than any other group of citizens, a grave responsibility and an inescapable obligation exists not common to others. If we fail to hold the torch of enlightened thought in things pertaining to health and disease by what light are our legislators to be guided?

There is no reason to believe that a single one of our representatives would not welcome a letter or a personal interview from his family doctor or any other physician of the state. Aside from offering expert and technical advice, such an act would give moral support to oppose the vociferous demands of small groups who are constantly seeking some type of class legislation.

Fortunately both Houses of the Assembly have strong and experienced committeemen on Medical Affairs. The Senate committee consists of the following:

A. M. Lininger, Chairman, Englewood.
F. C. Murchison, Arvada.
T. G. Lashley, Boulder.
A. J. Simonson, Denver.
C. F. Horn, Pueblo.
J. H. King, Sterling.

In the House of Representatives:

E. J. Brady, Chairman, Colorado Springs.
Annah G. Pettee, Denver.
Lincoln Wilson, Denver.
R. A. Maxfield, Laporte.
W. V. Watson, Plateau City.
A. R. Jackson, Cripple Creek.
W. L. Curtis, Gunnison.
J. A. Burnett, Poncha Springs.
D. E. Hunter, Manzanola.

These committeemen deserve the best counsel and the most loyal support of our profession.

Safety in Knowledge

Patients may recover without even knowing they are tuberculous; but it is far better that a tuberculous person study the disease in order that he may recover more rapidly and that he may avoid a future breakdown. Knowledge of the disease gives one a feeling of safety, and safety means happiness. A person who has been tuberculous and is well informed on the subject is not often worried about his future. He knows how to avoid trouble, he feels safe, and, as a consequence, is more likely to live a normal and happy life. Patients, taking a rest cure, should learn tuberculosis—learn it well! Traveling about in the dark is an unsafe way to get through life.

Persons with supposedly imaginary troubles are commonly advised to "forget it." Such advice is dangerous. The great evil resulting from the indiscriminate use of the expression—forget it—is that the patient often has at the time not only a serious but actually a fatal disease that the doctor has not discovered.

After a tuberculous patient has taken a rest cure and has gone back to work, his mind begins to build up a barrier to exclude the disagreeable parts of his recent experience. This is normal. Only morbid minds and chronic sympathy seekers continue to dwell on hardships, past or present. The healthy mind forgets disagreeable experiences. For this reason, persons that have been tuberculous often wilfully deny the fact after recovery from the disease. It is commendable self-deception. But they do follow the straight and narrow path, and, should evidence of what they think may be active disease reappear in them, they go at once to their medical attendant for another examination.—Getting Well and Staying Well, John Potts, C. V. Mosby Co.

Accident Prevention in Boston Schools

Boston has appointed one teacher as a safety counselor in every school and district of its school system, whose duty is to encourage safety programs under the direction of the principal, and to present to the school or district in those safety organizations which have approved relations with it. The school authorities have distributed to these counselors a course of study in safety education for elementary and junior high school grades.

Austin's $700,000 Bond Issue for Recreation

The people of Austin, Texas, want more parks and playgrounds, and in order to get them they voted for a bond issue of $700,000 to be used for the development of recreation in the city. The money is to be spent during the next five years.

OESOPHAGEAL DIVERTICULA*

Report of Two Cases

GEO. E. RICE, M. D.
PUEBLO

Oesophageal diverticulum may be defined as a pouch or pocket leading off from the oesophagus. Judd states, however, that the wall of the diverticulum is composed solely of the mucosal and submucosal layers, which protrude through the muscular layer and tunica adventitia.

Oesophageal diverticula are comparatively rare. Judd reported thirty-five cases from the Mayo Clinic in 1918. Lahey reported eight cases from the Lahey Clinic in 1926. Bevan reported a case in 1917 describing the Sippy-Bevan operation. Several isolated case reports are to be found in the literature.

J. H. Saint in a very recent article from the Mayo Clinic on experimental surgery of the oesophagus states that nowadays the only surgical procedure that can be carried out on this organ with anything like persistently good results is extirpation of diverticula.

Oesophageal diverticula may be divided into two types:

1st: Those produced by traction from outside causes, possibly cicatrization following a purulent gland; and

2nd: Those caused by pulsion or pressure. A stricture of slight degree might cause an increase of pressure in the oesophagus during the act of swallowing which could eventually lead to such. The traction diverticula rarely give rise to symptoms due to the fact that they are seldom shaped to hold and retain food particles—the neck being wide and the apex of the sac high. Pulsion diverticula present the precisely opposite picture and give symptoms due to their aptitude to gather and retain food.

The commonest site for the latter lesion is at the juncture of the pharynx and oesophagus at the level of the cricoid cartilage. They usually lean to the left. This fact strongly suggests that the oesophageal wall must be thinner or less resistant at this point than any other. The pouch tends to expand downward along the oesophagus into the mediastinum as it increases in size. This is the course of least resistance due to lack of supporting structures on the outside of the oesophagus at this point. Thus we find the neck of the diverticulum at its uppermost point, and hence the accumulation of food, water and saliva.

The diagnosis is suggested by dysphagia, favored by history of loud gurgle on swallowing and cinched by x-ray of the oesophagus after the barium meal. In the pharyngo-oesophageal type the barium may be seen flowing into the sac, filling it and then overflowing into the oesophagus below. The degree of oesophageal obstruction depends upon the size of the pouch and the pressure it exerts upon this organ when distended. The history is usually that of progressive dysphagia with corresponding loss of weight. It is truly a disease of the elderly, rarely seen under the age of 45 or 50. Its progress is slow and three to five years usually pass before the patient seeks medical or surgical aid. The dysphagia is apt to be less marked at the beginning of a meal than later, when the sac becomes distended with food content, thereby causing an increase of pressure upon the oesophageal lumen. If the pouch is large, a tumor may be seen and felt in the neck after a meal. Pressure on this will cause the material to be regurgitated with a characteristic gurgle. Swallowing is always noisy. With a stethoscope and a swallow of water for the patient, the diagnosis can be assured without further aid. X-ray and the barium meal, however, give the exact size and location with precision and should be employed in all cases.

Treatment of oesophageal diverticulum depends upon the size of the sac, relative size of the neck and its location. Mixter reports having treated successfully small diverticula with large openings by repeated dilation of the oesophagus with large sounds. such treatment would be of no avail in large ones with highly placed small necks. Passage of sounds in these cases is extremely

*Delivered before the fifty-eighth annual meeting of the Colorado State Medical Society, Colorado Springs, September 11, 1928.

risky unless properly guided by a previously swallowed thread that has had time to be well anchored in the stomach and small intestine. The method of Plummer and Sippy wherein the patient swallows eighteen feet of silk thread on the day previous to the dilatation, and the use of dilators that can be threaded over the silk makes the procedure much safer. With the silk thread held taut and the threaded dilator passed gently there is little danger of perforation and subsequent mediastinitis.

Surgical treatment has run the gauntlet of many reverses. It was not until 1909 when Goldman in Frieburg proposed and did a two-stage operation that the surgical treatment became safe and sound. The first stage consisted of freeing the sac by careful dissection, ligating the neck, packing the wound around the delivered sac, and then suturing the pouch to the skin. The ligation of the neck would then cause the sac to slough off, and form a fistula which would later close. Murphy improved the method by omitting the ligation of the neck, and thus avoided the sloughing. After the tract was well walled off by protective adhesions, he resected the diverticulum.

This precaution before opening the sac or resecting it prevents soiling from the oesophageal contents, which might easily lead to a fatal mediastinitis or cellulitis of the neck. Judd in 1918 reported a further modification wherein the skin was sutured to the neck of the diverticulum and the sac left unopened until protective adhesions had formed around the neck of the sac and the skin. Excision of the diverticulum without anesthetic could be done some two weeks later and the cut edges invaginated and sutured. Lahey in 1926 described another modification of the two stage operation which consisted of suturing the skin to the body of the sac. He later amputated the diverticulum flush with the skin and then dissected the mucosal layer down to the oesophageal wall and amputated it. He cautions against anchoring the pouch with too much tension on the oesophagus, and also against dissecting the mucosal layer into the oesophageal lumen. After amputating the diverticulum and mucosal layer of the neck, he packed with boric ointment strips and allowed the fistula to heal by granulation. He also recommends the passage of oesophageal dilators as a post operative procedure at varying intervals.

Large diverticula should all be treated by the two stage method to avoid the greatest of all dangers in the operation, leakage, soiling and mediastinitis.

Small diverticula can be treated successfully by the one stage operation advocated by Sippy and Bevan. This consists of invaginating the outer half of the pouch, followed by a series of purse-string sutures until the sac is completely inverted into the oesophagus where it atrophies or sloughs off. Thus soiling or leakage is avoided if the sutures are accurately placed.

In case of either operation the approach is usually from the anterior border of the left sterno-cleido-mastoid muscle, elevation of the left lobe of the thyroid, outward retraction of the jugular vein and carotid sheath to expose the oesophagus and sac at the level of the cricoid cartilage. Dissection of the sac is usually easy. The diverticulum can then be delivered and treated according to its size. Fixed in the transverse position without too much traction on the oesophagus it will give few symptoms until protective adhesions allow safe amputation. No fear of the fistula failing to close need be entertained, though it be weeks in so doing.

Local anesthesia is the anesthetic of choice. It permits cooperation of the patient, insures against inhalation of sac contents, and avoids the retching and straining that may accompany the awakening from a general anaesthetic.

Case Reports

Case 1—Mrs. W. G. L., age 73. Dysphagia five years, gradually increasing in severity. Marked gurgle on swallowing. Regurgitated food after eating. Above conditions embarassed her so that she would refuse to eat in presence of company. General condition satisfactory. X-ray examination showed an oesophageal diverticulum 4.5x5 cm at level of first thoracic vertebra.

September 11, 1924. First stage of the Mayo operation performed under local anaesthetic. Pouch was dissected free, delivered, twisted and sutured to skin, gauze packs above and below pouch. Diverticulum not opened. This is my conception of the Chas. H. Mayo operation, leaving the Diverticulum as an unopened Colostomy.

September 20, 1924. Diverticulum sloughed off at juncture with oesophagus—fistula formed.

October 27, 1924. Fistula healed.

October 30, 1924. Fistula opened—draining.

November 3, 1924. Fistulous tract dissected out, amputated near oesophagus, remaining portion invaginated into oesophagus and oversewn. Healed uneventfully. Heard from four years later, not having any trouble.

Case 2—Mr. J. W. N., age 63. Dysphagia nine years. More difficulty with solids than liquids. Dysphagia increased as the meal progressed. Regurgitates food after eating. Noted loud gurgling on swallowing. Coughs a good deal, worse after eating. Lost about thirty pounds past six months. X-ray showed diverticulum at the juncture of the pharynx and oesophagus 4x5 cm.

April 4, 1928. First stage of the Mayo operation performed under local anaesthesia. Sac freed and delivered—iodiform gauze packed around sac. Sac sewn to skin and left unopened.

April 14, 1928. Second stage operation under local anaesthesia. Diverticulum amputated at neck and stump invaginated by mattress sutures. Fistula developed.

May 18, 1928. Fistula has gradually decreased in size and amount of drainage until closed. Complains slight difficulty in swallowing solid food.

June 16, 1928. Checked by X-ray, which showed slight stricture at level of first thoracic vertebrae. Plummer dilators passed over silk thread guide swallowed day previously.

July 18, 1928. No dysphagia.

September 3, 1928. No trouble with swallowing. Gained twenty pounds.

Summary

1. Oesophageal diverticula are rare.

2. Diagnosis readily made by history and x-ray. Most of them give history of dysphagia and gurgle on swallowing.

3. Choice of operative correction depends upon the size of the pouch. Small ones can be successfully treated by the Sippy-Bevan operation. Large ones can be operated upon safely only by the two stage method.

BIBLIOGRAPHY

[1]Judd, E. S.: Oesophageal Diverticula: Surg. Gynec. and obst., 1928, XXVII, 135-141.

[2]Mixter, S. J.: Congenital Oesophageal Pouch, excision, immediate suture of oesophagus, recovery. Tr. Am. Surg. Assn., 1895. XIII, 357-360.

[3]Lahey, Frank H.: The Technique of the two stage operation for pulsion oesophageal diverticulum. Surg. Gynec. and obst., Sept., 1926. XLIII, No. 3, 359-365.

[4]Bevan, A. D.: Pulsion Diverticulum of the oesophagus: Cure by the Sippy-Bevan operation. Surg. Clinics of Chicago, 1917. I, 449-457.

DISCUSSION

George B. Kent, Denver: Diverticulum of the esophagus has long been known and described. The lack of facilities for examination, especially the x-ray, has delayed thorough knowledge of this condition. Bell, in 1830, recommended and made an external fistula into the sac. Rakitansky, in 1840, described and made the two classifications as given by Dr. Rice; the traction, and the pulsion. Nichans probably made the first extirpation in 1881.

The pulsion type is pushed out from within by violent peristaltic action at this the narrowest part of the canal behind the cricoid. This is known as the Lannier-Hackerman triangle. It is a congenital defect, really a herniation between the fibers of the inferior constrictor of the pharnyx.

Once the esophageal muscle is penetrated the sac gradually enlarges and develops a semi-inflamatory thickening of the fibrous coat.

The traction type of diverticula may appear anywhere in the course of the esophagus, but usually are situated at the bifurcation of the trachea. They are usually small with the fundus of the sac higher than its neck, and therefore empty easily and give rise to no symptoms. They are usually caused by adhesions following suppuration or infected glands as pointed out by Dr. Rice. In the American Medical Journal of September 1, 1928, Dr. Fitzgibbons reports a case of esophageal diverticulum which is apparently of the traction-pulsion type occurring in the lower third of the esophagus accompanied by cardiospasm.

The patient usually gives a history of difficulty in swallowing for years usually described as a scratching or catch in the throat as the food passes down. There may be a persistent cough. Later small amounts of food are regurgitated at any time during the meal, making it embarrassing to eat in the present of others. These patients usually say that they can swallow better after they have eaten a few bites and filled the pouch. The gurgling sound mentioned by Dr. Rise is almost always present. A tumor may or may not form in the neck after eating, and some patients learn early to make pressure on the side of the neck and empty it after eating. Food eaten many hours previously may be regurgitated as eaten. There is slow emaciation. The difficulty in swallowing has no relation to the size of the pouch, and is not entirely due to the pressure of the sac when full upon the esophagus, as noted by Dr. Rice, but partially due to the traction of the pouch upon the wall of the esophagus causing its lumen to be obliterated at the level of the origin of the diverticulum. This is shown by the fact that certain patients with large diverticula may swallow with comparative ease by lying down when they cannot swallow at all in the upright position. It will also be noted in making an esophageal examination with the esophagoscope that the scope passes readily into the opening of the sac, the normal opening in the esophagus being hard to find even though the sac is empty.

The act of swallowing will fill the sac with air and external pressure on the sac will cause a gurgling of air into the throat which can be felt and heard. Filling the sac with barium under the fluorscope, is of greatest value. An esophagoscopic examination is not necessary but may be made. The presence of the esophagoscope in the diverticulum for identification of the sac during its removal is not necessary as it causes considerable shock.

These patients are usually emaciated, and markedly dehydrated. It is rarely necessary to do a preliminary gastrostomy for feeding purposes. This can usually be done by passing a small rubber tube into the stomach over a thread as suggested by Plummer. This method was used in four cases by me, in the other case a gastrostomy had been done before I saw the patient, and feeding was carried out previous to and after the operation through the opening in the stomach. It is well to allow the rubber tube to remain in position for a few days before operation. During that time water and food can be forced, and the patient will also become accustomed to the pres-

ence of the tube in the throat. The tendency to swallow following the second stgae ot the operation is the cause of the formation of the fistula in most cases. The tube is usually left in place until the fistula is firmly healed.

The external surgical removal in one or two stages, obliteration and change in position are the choice of methods of treatment. As stated by the speaker, local anaesthesia should always be used to prevent of inhalation of the contents of the sac when it is elevated.

The approach may be through an incision along the internal border of the sterno-mastoid muscle from the level of the cricoid to the supra-sternal notch or through a high necklace incision. It is generally made on the left, although I used the right side in my five cases. After cutting through the platisma the ribbon muscles of the neck are separated by blunt dissection and the sterno-mastoid and great vessels of the neck retracted laterally. The inferior pole of the thyroid on that side is divided between ligatures and elevated. This brings the dissection down to the site of the diverticulum. At this stage it is well to ask the patient to swallow. In doing so the sac is distended with air, and easily differentiated from the other structures of the neck. It is much whiter in color than the esophagus, and lies just posterior to it upon the spinal muscles. The sac is grasped with stomach clickers and lifted up by blunt dissection, care being taken to dissect it free as near to the attachment to the esophagus as possible. Extreme care must be used not to puncture the sac in dissecting it free.

At this stage, the type of excision operation to be used is decided upon. The small sacs may be reefed up as described by Bevan, and used by me in two cases with excellent results. The larger sacs should be removed in two stages. After the sac is free the skin is stitched to its base or neck as near to the esophagus as possible, care being taken not to allow the needle to penetrate into the lumen of the sac. The planes of the neck are then packed with gauze and the sac left in a vaseline gauze dressing for six to ten days when it is removed and the edges turned in. I have used the two stage operation in three cases with excellent final results although all had a draining sinus for some time before final healing took place.

The most serious complication is puncture of the sac during its removal, or puncture with the needle when stitching the skin to it or too early sloughing of the sac with a mediastinitis following. This happened in one of my cases. He had a large diverticulum, which held 250 cc. of water, which sloughed at the fundus of the sac two days after the first stage operation. A severe mediastinitis developed accompanied by an edema of the glottis necessitating a tracheotomy and drainage of the mediastinum. A soft rubber tube of large calibre was stitched into the mediastinum at the same time the tracheotomy was done along with the removal of the sac of the diverticulum. The rubber tube was kept full of 60 per cent sugar solution, as suggested by Dr. Singer of Pueblo, and the infection gradually cleared, and the patient made a complete recovery. This patient was fed through the rubber tube for 94 days.

Operation upon the esophagus, other than for this type of diverticula is a very depressing chapter of surgery. Dr. Mann has recently developed a technique whereby he can successfully remove a section of the esophagus of the dog. It is hoped that he will give us further experimental data so that operation upon this organ, especially for malignancy, may be undertaken without too great a risk.

ISOLATED FRACTURES OF THE TRANSVERSE PROCESSES OF THE LUMBAR VERTEBRAE*

JOHN B. HARTWELL, M.D., F. A. C. S.,
COLORADO SPRINGS

In 1908 Ehrlich[1] reported the first fracture of a transverse process of a lumbar vertebra clinically suspected and roentgenologically proven. Before this three cases had been reported: two were discovered at autopsy and the third at operation. In 1910 Tanton[2] collected 15 cases from the literature and added 2 personal cases. In 1924 Niedlich[3] analyzed 103 cases and in 1927 Herndon[4] noted in a study of 941 consecutive back injuries to industrial employees that 36 or 3.8 per cent had sustained isolated fractures of the lumbar transverse processes.

These figures show that this injury is not rare and is being more generally recognized. Though falls from a heighth or horseback and automobile accidents have caused these fractures, the majority of the reported cases concern industrial workers. Since industrial insurance is obligatory in so many states the subject has an economic side.

Isolated transverse process fractures occur almost exclusively in the lumbar segment of the spine where these processes are relatively long and relatively slender and relatively unprotected. In the cervical region the processes are very short and in the dorsal region the backward bowing of the ribs protects the transverse processes from direct injury. To the lumbar processes are attached segments of the powerful erector spinae muscle group posteriorly, the powerful psoas and diaphragmatic crus anteriorly and the tips of the processes serve for insertion of the quadratus lumborum. These processes do not project horizontally outward

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from the vertebral pedicle but incline backwards as well as outwards.

Transverse process breaks are caused by much the same means that produce rib fractures. As Stemmler[5] stresses: "It is idle to argue whether direct violence or muscle traction is the usual method of production. In the literature are unquestionable examples of transverse process fractures produced by both methods." Niedlich[6] notes that Oudard and Jean with a 500 gram hammer experimentally produced a fracture of the transverse process of the first lumbar vertebra by a blow under the twelfth rib and with a 1,500 gram "Englander" a blow over the long back muscles produced a fracture of the fourth and fifth transverse processes. A blow of extraordinary force is therefore not required to cause such a fracture. If a cough can result in a broken rib, who shall say that muscle pull can't fracture a transverse process? Exceptionally as in a case reported by Moore[7] a process may fracture spontaneously as the result of disease.

Any transverse process may be broken, but the third and fourth seem most vulnerable, probably because the 3rd is the longest while the 4th is the weakest. Frequently two or more processes on the same side are broken and bi-lateral fractures of the transverse processes are reported.[8-9]

The only constant symptom in transverse process fracture is back pain—a symptom common to many conditions and the differential diagnosis of which is beset with great difficulty. Even in recent cases the backache need not be sufficiently bad to compel stopping work nor to put the patient to bed. Where a single process is broken the pain is localized, but if several are broken the pain is diffuse. Almost every body movement exaggerates the pain, but particularly those motions calling the psoas, erector spinae or quadratus lumborum muscles into action. Referred pain in transverse process fractures does not usually occur early unless complicated by a contusion of the kidney or a retroperitoneal hematoma. Rogers,[10] however, stresses that pain may be referred to the knee, and referred pain resulting from lesions of the transverse processes was made the subject of a paper by Bauman.[11]

Physical examination even in fresh cases need show no external evidence of injury such as discoloration of the skin or swelling, and a sense of crepitation is not to be expected. But in the presence of contusions of the back or hematoma the possibility of an accompanying transverse process fracture should not be forgotten. When the patient stands there is usually, but not invariably, a little scoliosis, the convexity toward the sound side. The erector spinae muscles on the injured side are usually in spasm and all motions of the lumbar spine are limited in range—especially forward flexion and lateral flexion toward the sound side. Though not pathognomonic of transverse process fracture, it is a suggestive symptom when the patient can bend toward the injured side with less pain than toward the sound side. Tanton stressed the importance of inducing acute lumbar pain by actively raising the extended leg on the injured side, the patient lying on his back. Where this sign was not positive in the cases here reported, there was definite psoas spasm on the injured side as tested in the usual way—patient prone, the lower extremity with knee flexed is raised from the bed, the left hand supporting the pelvis. The most important sign, however, is localized tenderness. Though there be a large hematoma with diffuse sensitiveness, a point or points lateral to the spinous processes can be detected by careful examination where tenderness is maximal, and this point or these points are fixed and constant.

There are two sources of error in diagnosis. One is mistaking the tenderness over the transverse process for renal tenderness, particularly when blood cells are found in the urine. The second is attributing the spasm of the diaphragm, which makes deep breathing painful or impossible, to an intrathoracic lesion. Both errors are most likely when the fracture involves the transverse process of the first lumbar vertebra.

Given a history of back pain of sudden onset, whether from injury or muscular action, with localized tenderness lateral to the midline, an x-ray is demanded. And it is only

by a positive x-ray that a diagnosis of transverse process fracture can be substantiated. Stereoscopic films are desirable for they emphasize the line of fracture where no displacement of the fragments exists and accurately show the planes of displacement where such is present.

Great care is required in interpreting x-ray films. A simulation of fracture is often produced by the shadow of the psoas crossing the transverse processes. A second glance should prove the optical delusion. Developmental and congenital anomalies cause much confusion. Un-united epiphyses constitute the chief developmental anomaly. "The tips of the transverse processes develop from centres which appear about puberty and fuse about the eighteenth year," according to Piersols' Anatomy.[12] Bierman[13] notes that these secondary centres of ossification unite at any time between the sixteenth and twenty-fifth year. The un-united epiphyses give a characteristic picture in that the epiphyseal line lies outside the junction of the middle and outer thirds of the process and is distinctly convex outward. Typically all the processes will show a similar line. Exceptionally one epiphysis may fail to unite and under this condition careful study of the film is necessary to avoid error in interpretation. Fracture lines usually occur nearer the pedicle and are either oblique or transverse to the long axis of the process. Not infrequently on the x-ray film the fracture line presents a distinctly serrated appearance instead of the smooth epiphyseal line. Lumbar ribs constitute the most frequent congenital anomaly. Bierman notes this anomaly in from 5 to 10 per cent of all gastrointestinal patients examined by him over a period of about six months. Fraas[14] quotes Forsell as finding rudimentary ribs in the upper two lumbar vertebrae in seven of two hundred x-rays of the lumbar spine. To the writer an incidence of lumbar ribs in 3½ per cent of cases seems large. Bierman states: "A lumbar rib should give no difficulty in diagnosis, provided the transverse process on the opposite side is shorter than the transverse process and lumbar rib on the suspicious side."

The treatment of transverse process fractures should depend upon what Nature usually does. If the usual outcome is callus formation and sound healing mechanical support is the rational therapy. If non-union is to be expected the whole aim of treatment is to lessen suffering. That bony healing does occur is proven by the reports of Rhys[15] and Skillern[16] and Brown and Dodd[17] and Kennedy.[18] In the first two the callus was exuberant and in Skillern's case so exuberant that operation was done to relieve nerve pressure symptoms.

These cases of bony union are cited because non-union or fibrous union is the rule. Since non-union is usual, whether treatment shall be conservative or radical depends on the disability resulting from the injury. Cotton[19] states: "No case has yet come to my attention with apparent fracture of the transverse processes (who did not have a claim on anyone) in whom this fracture seemed to cause disability beyond that ordinarily associated with contusion or sprain of the back. Judging by what I have seen so far, there must be many people walking about with separate transverse processes and in many instances, probably the result of trauma, but there does not seem to be any data on which to base any idea of any permanent disability from this cause." Kennedy writes: "The disability caused by the injury is due solely to the associated contusion or sprain of the back and the presence of the fracture is negligible as far as prolongation of disability is concerned. Owing to the frequency of traumatic neurosis, it is preferable that knowledge of an existing fracture be kept from the patient." In both series of cases the date of discharge from the hospital is recorded but the total period of disability is not noted nor the final disability. In contrast is the series of seventeen cases by Thomas.[20] "Seven had no disability and the remaining ten were partially disabled as follows: Five had a disability ranging between 5 and 25 per cent, two between 25 and 50 per cent, and three between 50 and 75 per cent. These results in the transverse process fractures are rather surprising as most authorities report uniformly

good results in such cases." Thomas series was carried to the end results. Wilmarth[21] cautions: "Patients with fractures of the transverse processes, undiagnosed and treated as back strain with deep massage and early motions, continue to have pain and frequently are diagnosed as having traumatic neurosis."

End results are difficult to cull from the literature. Hospital stay is noted in many cases but condition on discharge is not specific and the end result absent. From the cases of Niedlich, Fraas, Ehrlich and Tanton twenty cases with results on discharge have been collected. Of these twenty cases

1 was discharged from the hospital in 11 days still complaining of backache.

1 was discharged from the hospital in 13 days free from complaints.

1 was discharged from the hospital in 19 days well.

3 were discharged from the hospital in 3 weeks—2 of which were healed and free from pain, 1 careful of back movements.

5 were discharged from the hospital in 5 weeks; 1 free from pain, 1 not wholly free from pain; 1 sensitive to pressure; 1 who 3 years later still complained of pain; 1 condition not stated.

3 were discharged from the hospital in 3½ weeks with some sensitiveness on pressure.

1 was discharged from the hospital in 6 weeks free from pain.

3 were discharged from the hospital in 7 weeks; 1 had uncertain feeling in back on locomotion; 2 had sensitiveness over broken processes and either stiffness of the spine or limited motions.

2 were discharged from the hospital in 10 weeks; 1 with back motion limited; 1 with pain on flexing trunk.

1 was discharged from the hospital in 14 weeks still complaining of backache.

1 was discharged from the hospital in 18 weeks relieved.

In other words a hospital residence of six weeks and conservative treatment gave a wholly satisfactory result in one-third of the cases, and one patient is recorded as having pain as long as 3 years after his discharge from the hospital. On the basis of these 20 cases conservative treatment has not yielded acceptable results.

In a personal communication, Dr. Atha Thomas has reported the average period of disability in thirteen cases treated conservatively at the Minnequa Hospital in Pueblo, as 4.9 months. His final results are better. As determined by the Industrial Commission of Colorado, ten of the thirteen had no permanent disability. One was granted 20 per cent total permanent disability, one 25 per cent permanent total disability, and the disability had not been determined in one case. However, he adds, "Some of the men who were given no permanent disability rating showed some reduction in earning capacity following their return to work."

The present report was stimulated by 9 personally observed and roentgenographically proven cases, 5 submitted to resection of the fractured fragments. Two of the five were fresh cases. One, a nurse in training, submitted to removal of the fractured fragments of the right transverse processes of the 2nd, 3rd, 4th lumbar vertebrae 8 days after the causative fall from a horse. She left the hospital on the twelfth day and returned to work a month after the accident and finished her training. The other was an Italian laborer who fractured the right transverse processes of the 3rd and 4th lumbar. Operation was done 5 days later and broken fragments removed. He left the hospital on the 20th day and returned to pick and shovel labor 6 weeks after the accident or 5 weeks after operation. A recent report has not been obtained since he has returned to Italy.

The remaining 3 operations were done on patients who had received their causative injuries 1, 4 and 7 years previously and back pain was sufficient to induce them to accept operation though no promise of relief was given. One of these is particularly interesting because she was a girl of 15. A plaster jacket was applied early and worn for 3 months with freedom from pain. When jacket was removed the pain recurred and very much limited her activities. She had to forego swimming and horseback entirely.

But the pain induced by the pressure of her back against a chair during the sessions of business school drove her to seek relief by operation. The left transverse process of first lumbar was removed. She left the hospital on the 7th day and returned to school 6 weeks after operation. She has finished her school work and taken a position as hospital stenographer and not lost a day nor complained of back pain.

She who had been injured 7 years previously returned to her work as house maid in 4 weeks and has worked steadily and suffered none of the previous back pain.

The other case was complicated by a surgical accident which delayed convalescence and made a second operation necessary, thus delaying the result. But the back pain has been completely relieved.

Of the 4 cases declining operation all have some discomfort, at times amounting to real pain, but not often enough nor pain enough to limit their activities to an unpleasant degree.

A study of this small series of cases indicates that, contrary to the frequently expressed opinion that transverse process fractures cause no permanent disability that the disability is in some instances marked; secondly, that the average duration of disability in the operative cases averaged less than 6 weeks, and, thirdly, that the end result in all was all that could be desired. My results parallel those in 7 cases operated upon by Rogers.

If larger series of operative cases will show the same end result as the cases here reported, we must seriously consider whether operation is not indicated in all fresh cases in order to minimize the patient's suffering and loss of time from work and to maximize his future working power. Certainly operation is indicated in all patients whose pain and disability are due to transverse process fractures that are six months or more old.

This small series of cases shows that at least half of the patients suffering transverse process fractures have a disability much in excess of those suffering contusion and that the disability may be prolonged over years.

Primary operation reduces suffering, lessens time loss and insures continuous later working ability. Primary fixation may relieve pain but must be continued for months instead of weeks. On removal of the apparatus the muscle atrophy induced must be overcome before the patient can return to work. This requires more time. Industrially, loss of time is figured in terms of dollars and cents. We have an obligation to the patient and to the insurance carrier. This obligation demands the greatest working ability in the shortest period of time.

Operation is not dangerous; convalescence is short; the results of operation are satisfactory and seem certain.

Case Reports

Case 1—C, A. J., Jr. (41). Referred by Dr. C. Harris, Woodman Sanatorium, for pain in the left loin, thought to be of renal origin. In January, 1921, while playing hockey, fell on another player's skate. Complained at once of severe pain in the left costo-vertebral angle and was confined to bed for a week, during which time opiates were frequently necessary. In January, 1922, he was still having so much back pain that he greedily accepted the possibility of relief by operation, which was done March 16th, 1922, and left transverse process of first lumbar removed. He was able to sit up for one and a half hours on the third day. Wound suppurated and pain persisted till sponge was removed September 30th. After sponge was removed, was free from old pain and has not since had a recurrence.

Case 2—V. S. B. (19). Student. Referred by Dr. W. H. Swan in December, 1923, for pain in right loin, dating back to April or May, 1923, when he was knocked off his bicycle by an automobile. Was in bed only one day. Has not since been able to do any lifting. Horseback riding last fall on two occasions caused recurrence of pain. X-ray right process of fourth and fifth lumbar.

Seen in 1927, still having pain occasionally.

Case 3—K. F. B. (15) student. Referred by Dr. G. B. Gilbert. Seen in January, 1924, for pain in the back "above the waist line." Foot slipped in descending icy steps and she fell on her back against the edge of a step. Walked home. Was not confined to bed. Has not since been able to lie on her back. Doesn't like to sit down because pressure of the chair against her back hurts. Can't bend forward nor back without pain. X-ray fracture of left transverse process first lumbar. Put in a plaster jacket February 16th. Jacket removed May 3rd. No pain when in jacket. Not seen again till February 16th, 1928, when she was still disabled by pain in the back. Operation February 28th, 1928. Left process first lumbar removed. Sat up March 4th. Went to work April 9th and has had no recurrence of pain.

Case 4—H. M. S. M. (19). Nurse in training. Fell from horse back September 31st, 1924, with immediate acute pain in the back to right of midline. X-ray fracture of second, third, fourth (right). Operation September 29th. October 11th left hospital. Returned to work October 20th, a month after accident. Seen July 20th, 1928, when she stated, "Back never bothers."

Case 5—N. C. (laborer, 35). Referred by Dr. J. A. Sevier. Feet slipped as he was carrying pipe down hill and he landed on his back on a rock January 28th, 1925. Fracture third and fourth lumbar (right). Operation February 2nd, 1925. Left hospital February 22nd. Went to work March 9th, six weeks after accident. Has gone to Italy, so present status not obtainable.

Case 6—B. M. C., maid (25). Seen on March 17th, 1927. Seven years previously was pinned under an overturned automobile for two and one-half hours. In a week's time resumed her work, though she has had a dull ache between the shoulders and in the small of the back. Stooping exaggerated the pain or riding in an automobile. Fracture left transverse process, first lumbar. Operation March 28th, 1927. Left hospital April 5th; returned to work April 28th, 1927, and has worked uninterruptedly since.

Case 7—I. R., trained nurse (29). Referred by Dr. J. B. Crouch April 9th, 1927, for suspected lesion of the right kidney. In September, 1926, had fallen from a horse. Was not confined to bed. Since January, 1927, has had pain in the right costo-vertebral angle; dull, but steady, with a constantly sensitive area to pressure. Has not had to give up work. X-ray fracture of left process first lumbar. At present has occasional discomfort, but not enough to warrant operation.

Case 9—A. J. K., laborer (57). Seen February 9th, 1928, for the Industrial Commission. In October, 1926, fell head foremost into a ditch, striking his right side against an abutment. Finished out the day and worked most of the next day, when pain in the right loin forced him to quit. In bed a little over a week. Pain in right flank has been continuous and he has not been able to work since his injury. During his stay in bed his chest was strapped for pleurisy. First lumbar, right.

Case 9—D. B. T. (56). Seen June 8th, 1928, following fall from a horse. X-ray shows fracture left process second lumbar. In bed eight days. Resumed riding June 30th. Long riding is followed by considerable distress in the back so that he has curtailed his horseback riding, but with this exception is fairly comfortable.

BIBLIOGRAPHY

[1]Ehrlich: Deutsche Zeitschrift fur Chirurgie, 1908, Vol. 92, P. 413.

[2]Tanton: Revue de Chirurgie, 1910, Vol. 30, P. 1101.

[3]Niedlich: Beiträge zur Klinischen Chirurgie, 1924, Vol. 132, P. 655.

[4]Herndon: Journal of Bone and Joint Surgery 1927, Vol. 9, P. 234.

[5]Stemmler, W.: Bruns Beiträge zur Klinischen Chirurgie, 1920, Vol. 118, P. 216.

[6]Niedlich, W.: loc. cit.

[7]Moore, B. H.: Journal of Bone and Joint Surgery, 1922, Vol. 4, P. 322.

[8]Davis, George G.: Surgery, Gyencology and Obstetrics, 1921, Vol. 33, P. 274.

[9]Jeanneney, G.: Gagette Hebdomadaire des Sciences med de Bordeau, 1928, Vol. 49:305-320.

[10]Rogers, C. C.: Surgery Gynecology and Obstetrics, 1921, Vol. 33, P. 314.

[11]Bauman, Geo.: Journal of Bone and Joint Surgery, 1923, Vol. 5, P. 579.

[12]Piersols' Human Anatomy: J. B. Lippincott Co., Philadelphia, 1907, P. 129.

[13]Bierman, Morris I.: Amer. Jour. of Roentgenology and Radium Therapy, 1923, Vol. 10, P. 456.

[14]Fraas: Brun's Beiträge zur Klinischen Chirurgie, 1920, Vol. 118, P. 414.

[15]Rhys, Owen L.: British Med. Jour., 1927, Vol. 1, P. 873.

[16]Skillern, P. G., Jr.: Surg. Clinics of No. Amer. W. B. Saunders Co., Phil., 1922, Vol. 2, P. 283

[17]Brown: Lloyd T., and Dodd. Walter J. Boston. Med & Surg. Jour., 1915, CIXX 3, P. 922.

[18]Kennedy, Robert H.: Annals of Surgery, 1927, LXXXV, P. 519.

[19]Cotton, F. J.: Interstate Medical Jour., 1916, Vol. XXIII, Page 138-142.

[20]Thomas Atha: Colorado Medicine, 1928, XXV, 19.

[21]Wilmarth, Clifford Lee: Jour. Amer. Med. Assn., 1928, Vol. 91, No. 1, P. 96.

DISCUSSION

Atha, Thomas, Pueblo: My short experience in an industrial hospital, where a large number of back injuries are admitted, has convinced me that isolated fracture of the transverse processes of the lumbar vertebrae is not a rare condition, as is commonly supposed; nor has it been my finding that it is a trivial injury, as considered by most authorities. I have found that it results in considerable permanent disability, as Dr. Hartwell has quoted from our figures. His viewpoint of shortening disability in industrial cases certainly strikes a sympathetic note, and I think anything that will tend to that end is to be commended.

I cannot believe, however, that indiscriminate operation in every case of transverse process fracture should be done, at least not in the type of cases we have to deal with. I think we must select our cases, because a great many of these fractures are accompanied by such severe ligamentous and muscle strain that such in itself tends to prolong disability rather than the fracture itself. Where the ligamentous and muscle injury is not great, the individual is young, and it is important to get them back on the job as soon as possible, I do feel the operation would be indicated.

There is another element that tends to lengthen disability in these back cases, and it is a mental or psychological one. Compensation insurance is not an unmixed blessing. An individual who is drawing compensation, who also has several accident policies in various fraternal orders and who has not the ambition or intelligence of more alert individuals, forms a real problem, particularly with back injuries, in getting him back to work at heavy labor.

Dr. Hartwell (closing): I am sure that I can agree with Dr. Thomas that in cases that present laceration the operation is confidently indicated. In the two cases that I suggested operation, the diffusion of blood that was found was really very surprising. I think that one of the things that delays convalescence in these transverse fractures is the absorption of the collection of blood that is the direct result of the fracture, or caused by the blow. If operation is done, the hematoma is evacuated and that cause for prolonged the time away from work is overcome.

In overcoming the compensation feature, it seems to me one thing you can do is to tell these fellows there is something very definite we can do for them, and instead of letting them lie around, take out the broken bony processes and their back pain, and I think that after the operation it is not so hard to get them back to work. It will be less effort to get them back to work if operation is done early than if operation is done late.

LIMITATIONS OF CHOLECYSTOGRAPHY

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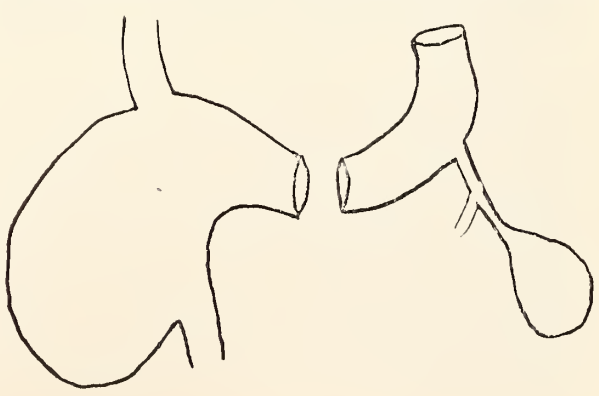
Cholecystography offers a valuable means of studying the physiology of the gall bladder. As a diagnostic procedure, much has been learned in the past few years; and more remains to be learned of its application to clinical pathology. Its possibilities in the future are great; but, as our experience widens, its application is becoming more and more complex. As to its value in establishing the criteria upon which diagnosis is to be made, it has most decidedly failed to fulfill its original intention; or, at least, the criteria upon which a diagnosis is made has not been sufficiently standardized. It is becoming more and more evident that patients presenting symptoms of gall bladder disease should have, in addition to cholecystography, a study of the gastrointestinal tract.

A most complicated array of statistics are now available purporting the accuracy of cholecystography. To prove that statistics are not always valuable it is only necessary to make mention of the misleading statistics published during the pre-dye dynasty. During this era a depictation of the gall bladder silhouette was thought to indicate pathology, and most positive statements to this effect were made. Carman and Case disapproved this conclusion in spite of the fact that 97 per cent accuracy was claimed and supported by apparently unyielding statistics. Since the introduction of cholecystography, we are able in many instances simultaneously to visualize the dye filled gall bladder and a silhouette which was previously recognized as a diseased gall bladder.

It is not the purpose of this paper to cavil at the relative merits of the oral or intravenous methods of administration of the dye. Many observers believe that their success is due to some personal modification of technique whether it be given orally or intravenously. These modifications are usually slight; and, when proffered with an orgy of fanciful writing and supported by statistics, the fundamentals of physiology or the liver and gall bladder may be entirely overlooked. It is only necessary to recall that the most vivid importance is attached to such slight variations in technique as: divided doses, plain capsules, coated capsules, emulsions, etc., variations in hours given or some special solutions in which the dye is suspended; and, when used intravenously, just as many slight variations are suggested. Above all, there are some who possess particular skill in the art of interpretation. It is to be expected that the accuracy or diagnostic conclusions of any roentgenologist after he has established his technique and a definite criteria for diagnosis, should compare favorably with others, whether given orally or intravenously. Most of the errors should be charged to the examiner instead of to the technique.

In spite of all the slight variations in technique few if any possess individual information sufficient to state that a diseased or normal gall bladder can be detected by the intravenous method in a given number of cases. Neither is it possible to compare the accuracy or inaccuracy of either method.

At this time many are against the Boyden meal arguing that a well balanced meal is preferable. To deduce inferences from premises, it is stated that when the stomach contains a well balanced meal that during peristalsis the antrum and cap surrounds the gall bladder and aids it in expulsion of its contents. To determine whether peristalsis of the duodenum, antrum and cap was a necessary factor the following experiment was performed on a domestic animal:



The relation of the duodenum, common duct and gall bladder have not been disturbed. It is impossible for food to enter the duodenum although the gall bladder empties after a meal of cream and egg yolks has been given.

Low dye concentration. A faint gall bladder shadow is interpreted as cholecystitis, because poor concentration represents pathology or impaired function. It is true that if an early cholecystitis is recognized it is by faint shadows. Some have gone so far as to state that any individual with slight dyspeptic symptoms in which there is a slight deviation from the normal cycle demands surgical intervention.

The question of importance is whether functional disturbance parallels or is synonymous with the pathological conditions in the gall bladder. Sufficient time has not elapsed actually to determine whether an operation is justifiable or is even indicated in the many faint shadows on the pretext of ill-defined gastrointestinal symptoms. It is not new to any one to have patients return to the office complaining of the same symptoms as before the removal of the appendix. It is more than probable that many cases operated upon because a faint shadow was present will in the future return with the same symptoms.

Interpretation of that which constitutes a faint shadow depends upon personal equation, and therefore a source of error is present if collectively considered. As a similar example, the degree of pancreatitis is often a personal equation to the palpating fingers of the surgeon. Those who have taken time to follow these clinical cases to the x-ray, to the operating room, and to the laboratory will less frequently make a diagnosis of cholecystitis from faint shadows. It is not difficult to interpret a non-functioning gall bladder if, by chance, the patient complains of distress in the upper right quadrant of the abdomen.

It is true that many cases presenting a faint shadow correspond to the pathology present, but there are equally as many in which the pathologist tells you that he is forced to draw upon his imagination to make a diagnosis of cholecystitis. It seems quite difficult for pathologists to agree as to just what constitutes a mild cholecystitis.

Patients suffering from pernicious anemia, diabetes, and malaria often show a faint or even an absence of gall bladder shadow after dye administration. If, however, these patients are submitted to appropriate treatment apparent improvement is noted. If, during this stage of acquiescence cholecystograms are made many cases will show normal shadows. This would seem to indicate that the gall bladder function may be impaired during the course of many diseases and at a later date regain its function. It is stated that a gall bladder once diseased is always diseased. This is true from the pathologist's point of view, but it does not imply that when once its function is impaired it always remains so. As an example, normal cholecystograms may be had after a cholecystotomy has been performed. We are aware of the fact that recent observers (as usual, supported by statistics) state that the frequent occurrence of abnormal cholecystograms in cases of arthritis reveal a new source of focal infection. Any diseased abdominal organ may be the source of focal infection. The occurrence of faint or even absent shadows in cases of arthritis is far from conclusive evidence that its origin is from the gall bladder. Repetition of the cholecystograms at a later date in many instances gives evidence of a normally functioning gall bladder.

Low dye concentrations are observed in apparent health and in diseases far remote from the upper right quadrant of the abdomen. Before considering a shadow faint, independent factors other than pathological changes in the gall bladder must be considered, such as a slight variation in time of exposure, distance, difference in intensifying screen and development time. Thick abdominal walls, ascites and pregnancy will likewise give a faint shadow. The density of shadows depends upon the quantity of bile reaching the gall bladder and its degree of concentration which varies from time to time, not only in health, but in disease. It is presupposed that low dye concentration likewise depends upon pathological changes which interfere with concentration of the bile. The disturbance of concentration does

not always correspond with the pathological changes at the time of removal of the gall bladder. In fact, some of the highest concentration may show normal cholecystograms with marked pathology. It is apparent that cholecystograms do not indicate the degree of concentration. The gall bladder, when diseased, may show normal concentration.

Concentration of bile is a function attributed to the gall bladder, and it is to be expected that interference with the concentration will show faint or absent shadows, and upon these findings arises a possible source of error in interpretation. It would seem that variation in the density of the shadows should depend upon the concentration, which is not always the case. Between the high and low concentration, the interpretation of cholecystograms widely varies.

In an attempt to correlate the value of determining the concentration as compared with x-ray findings, and the pathologist, 180 gall bladders have been critically examined. The degree of concentration was first determined in a supposedly healthy gall bladder. We use the term healthy because the patient in the second decade gave no history of previous illness or gastric disturbance, and the abdomen was free of operative scars. Bile was removed from the gall bladder with a small hypo needle at the time of repair of an epigastric hernia. It is generally understood that low concentration should give a faint shadow or even an absent one, and that high concentration should give a dense one. This was found not to be true.

The color, turbidity, specific gravity, cholesterol, and urea nitrogen determination was made in each case. The specific gravity of chronic cholecystitis with stones varied from 1002 to 1030, and in the absence of stones 1015-1040. Cholesterol was quite variable, and in no way compared with either the gross or microscopic changes in the gall bladder (168-1300 mg. for each 100 c. c. bile). In white bile, the specific gravity was low; and only traces of cholesterol or urea nitrogen was discovered.

In all cases of hydrops, empyema, acute cholecystitis, and in the old contracted gall bladder, concentration was very low and at times absent. In the papillomatous gall bladder concentration was very markedly increased; and yet, cholecystograms remained very faint.

Shadows must then depend upon the concentration of the organ as a whole; and therefore, variation of interpretation must and does occur in the same individual. Normal, hypo and hyperfunctioning areas may all be found in a single diseased gall bladder. In a series of experiments, it was determined that the area of the gall bladder lying in, or approaching the liver fossa, is the most active area of hyper-concentration. If sutures are passed through the wall of the gall-bladder in isolated areas so as to interfere with the blood supply, concentration is markedly disturbed.

This would seem to indicate that factors other than an infection might be considered in the realm of impaired function of the gall bladder. Occasionally, when opening the abdomen, a small blanched area is observed in the area of the pylorus, which from all appearance, resembles an ulcer. After palpation this area disappears. It is possible that similar changes may at times be observed in the gall bladder just as similar and peculiar phenomena occur in Raynaud's disease.

Absence of Shadows. Does the absence of a shadow always indicate a diseased gall bladder? In the absence of a shadow it is understood that the dye is not excreted by the liver, or that some intrinsic or extrinsic obstruction to the hepatic or cystic duct is present or that there is an inability of the gall bladder to concentrate.

In spite of these conclusions, bile of normal concentration may be observed, even to the point of distension, in the presence of abnormal cholecystograms.

If the gall bladder casts no shadow following the oral method, it is said to represent a diseased gall bladder; but those advocating the intravenous route state that it merely suggests. It is then apparent that the technique must be standardized, and that the significance of certain essential points must be determined, and that these

facts must be checked against pathological findings before definite conclusions can be made.

As a means of obtaining opinions from various roentgenologists, the following plan was carried out, and this plan further shows the lack of uniformity of interpretation. Healthy primaparas all under thirty years of age were selected. By healthy, it is understood that they were free before pregnancy of any digestive disturbance, and that their past history was entirely negative. Eighteen of these cases gave normal cholecystograms. The remaining fourteen gave very faint or absent shadows. In the absence of any history, interpretation of these fourteen cases was unequivocally that of a diseased gall bladder. It was assumed that pressure was interfering with the emptying of the gall bladder even though the cholecystograms gave no evidence of distortion. However, this was not considered unusual because deformity of serrations may occur in a normal gall bladder; and, on the other hand, the gall bladder may be embedded in the liver substance, and yet a normal cholecystogram may be had.

Soon after delivery of these fourteen cases, shadows again appeared normal after dye administration. The point we wish to make is that, if these cholecystograms were presented to a surgeon and the patient complained of attacks of colic, an operation would be advised. This cannot help but convince one that personal equation enters into interpretation of cholecystograms in the presence of a definite history of gall bladder disease.

As a means of determining the part played by an enlarged uterus interfering with the normal emptying of the gall bladder, a series of experiments was carried out. A rubber bag with a small tube outlet was introduced into the abdomen of a cat. This bag, when fully distended, occupied as much or more space than a full term pregnant uterus. The gall bladder was then filled with iodized oil. The following day the animal was given cream and yolk of an egg. The rubber bag was then distended with sodium iodide through the small tube from the rubber bag. In spite of its weight, displacement, and increased abdominal pressure, the gall bladder empties its contents of iodized oil. The first argument is that the animal walks on four feet and therefore pressure is not disturbed as in humans. However, animals when subjected to this treatment are not inclined to walk. It seems that a pregnant uterus does not always interfere with the normal emptying of the gall bladder, but there is much in favor of the theory that the disturbance of its function depends upon some metabolic factor as yet not understood.

HEMOLYTIC JAUNDICE APPARENTLY CAUSED BY BACILLUS WELCHI

Report of a Case

Patient first entered the Union Printers Home, Colorado Springs, Colo., October 13, 1915, suffering from moderately advanced, active, pulmonary tuberculosis, with severe diabetes mellitus and nephritis. He was also suffering from retinitis of both eyes, which had almost destroyed his vision.

He was put upon diabetic treatment for the diabetes, and rest for the tuberculosis. By 1918 the tuberculosis was arrested, while the diabetes and nephritis were well under control.

About December, 1927, patient began to exhibit a progressively increasing, painless jaundice. Various causes as carcinoma at the head of the pancreas, etc., were searched for but were not found. Laboratory:

4-4-28: Vanden Bergh (indirect) had an icterus index of 12.

4-4-28: Blood Count:

Erythrocytes 4,300,000, leucocytes 7,250, lymphocytes 38 per cent, large mononuclears 1 per cent, poly morphonuclear leucocytes 61 per cent.

4-17-28: Caroteoemia, a doubtful trace.

4-11-28: Stool culture, an overgrowth of bacillus welchi.

11-23-28: Fragility Test: Hemolysis begins at .38 per cent and is complete at .32 per cent.

Patient was given buttermilk in moderately large doses and jaundice has progressively cleared until there is now only a very slight trace of its former intensity. Patient has gained 15 or 20 pounds in the meanwhile.

Of course it is not a completely proven fact that the gas bacillus caused the jaundice, but it is extremely suggestive; and those who claim that there are no toxins absorbed from the intestinal tract probably err as much or more as those who attribute all the illness from cancer to headache to an intesinal putrefaction and absorption.

B. E. McGOVERN, M.D.

Cancer Control Activities in Four Mid-Western States

During the fall months of 1928 intensive cancer control activities took place in Missouri, Iowa, Nebraska and Wisconsin, as the result of educational work in these states conducted by Dr. R. V. Brokaw, field representative of the Society.

MEDICAL ASPECTS OF THE CRIME SITUATION*

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Several months ago when I was on a train going back east, an apparently prosperous and intelligent Californian engaged me in conversation in the Pullman. We talked on a variety of subjects and apparently had many common interests including golf, politics and other inexhaustible topics. This pleasant state of affairs was rudely interrupted when he inquired as to my profession. I told him I was a psychiatrist. He looked somewhat confused and finally said, "Oh yes, you are one of those fellows that run around to all the murder trials and try to make all criminals insane." On the basis of the great general interest shown in the many recent developments in the psychiatric field I could not help but be astounded by such a remark, especially as it came from a source that might represent the general feeling of the laity regarding psychiatric work. A greater misconception of facts could not exist. **Psychiatrists seek exactly the same objectives as are sought by other groups interested in the criminal problem; that is, protection for the community from criminal acts, the prevention of crime and whenever possible the rehabilitation of the criminal.** We feel that more criminals should be segregated and take issue with the legal profession regarding the present method of fixed sentence for a crime, followed by the return of the criminal to the community. The legal approach is based chiefly upon a consideration of the crime committed, seeing that the criminal receives the penalty in accordance with the crime and that he is segregated for a fixed period of time. The psychiatrist's point of view is chiefly from the angle of a study of the criminal himself. We feel that a greater emphasis should be placed on an understanding of the social and individual factors entering into crime which is often an expression of long continued maladjustments of varying degrees. **The criminal represents one group of adjustment difficulties and falls within the focus of psychiatry and other branches of science.** The psychiatric view holds that with scientific study and analysis of the physical, chemical,, biological, psychobiological, social and psychological factors entering into the personality of the criminal, much can be understood regarding anti-social actions. Through a study of the entire biography of the individual in the sense of personality assets and liabilities the real beginning of criminal tendencies can often be found to date back to early childhood. Preventive studies during this period constitute a part of the modern psychiatric approach to these problems. Such studies through childhood and adolescence indicate that it is possible to foresee that certain individuals are apt to develop criminal tendencies. Early consideration and treatment of these tendencies **will mean in many cases the prevention of criminality.**

The psychiatric point of view is often more drastic than the legal point of view in that we frequently advise permanent segregation of individuals who are well advanced in crime, only to find that at the expiration of a term of so many years in prison, these individuals are allowed to return to the communities without even the formality of a mental examination. This means that a large number, usually the recidivist types, are willfully and lawfully turned loose on the community without any understanding of their mental condition in spite of the fact that psychiatric examination has repeatedly indicated the need of their permanent segregation. This group includes particularly the constitutional psychopathic inferior types, a group of individuals who do not profit by experience and who show a fundamental emotional defect and a moral unimpressionability which makes them one of the most dangerous classes to have at large. Surely the rapidly advancing science of psychiatry would not allow us to send an insane person to a state hospital for so many months or years. He is sent there to remain until his condition warrants his discharge and

*Read before a combined meeting of the City and County Medical Society of Denver and the Denver Bar Association, December 17, 1928.

the judgment of psychiatrists in the past has proven to be comparatively accurate in safeguarding the community from this class. The public would certainly have a good deal to say in a critical way if the insane were discharged from our hospitals in great hordes without examination, and yet that same public does not realize the even greater danger of our present legal methods concerning the parole and discharge of large numbers of certain dangerous types of offenders year by year. The psychiatric position is very definite and indicates that we will never accomplish anything with the mass treatment of the criminal. He needs intensive, individual study and treatment. Psychiatric study will not be a cure-all but it offers, in my opinion, the only hope in sight for a sensible approach to the treatment of the offender and surely it will result in marked improvement of the present haphazard methods. We hope it may lead to the development of psychiatric clinics in connection with our juvenile courts and all penal institutions. We also hope that it will lead to the development in our state of a psychiatric commission composed of three men well qualified in this field who will have an opportunity to examine completely special cases as in accordance with the successful Massachusetts Law which provides for a psychiatric examination of the following classes:

(1) Murder of the first degree.

(2) Persons indicted or bound over for a felony who

  (a) Have been previously convicted of a felony.

  (b) Have been previously indicted for any other offense more than once.

If the mental condition of the criminal as revealed by complete psychiatric examination were used as a basis for his continued detention, parole or discharge, it is certain that in general, criminals would be longer confined than is now the case, with the resultant increase in security to society. This would enormously relieve the load now carried by the communities,[1] the loss of billions of dollars (estimated seven billions per year), the exposure of the public to crimes of the most appalling types. For instance, a psychiatrist advised against the parole of a certain criminal. He also advised the creation of a psychiatric clinic in an eastern state penitentiary at a cost of $18,000 per year. This criminal, after parole, caused a fire with the resultant loss of $100,000 and the jeopardy of many lives. Surely it would prevent the psychopathic inferior who is constantly at odds with society from being returned time and again to the community. This method will be possible through a psychiatric classification of all convicted criminals and by having the recommendation for parole on a scientific basis, depending on complete psychiatric studies of the individual offender.

Perhaps it would be helpful if we would review the psychiatric facts of one of our recent outstanding failures pertaining to the problem of crime. This is the case of Edward Hickman whose entire history, beginning with the fact that he should never have been born, indicates the responsibility of the community and state for the occurrence of one of the most atrocious crimes in the annals of American criminology. I shall not take your time by giving a complete case history but will attempt to call to your attention the significant details which indicate possibilities for prevention, quoting extensively from Dr. Van Waters' report.[2]

The maternal grandmother was said to be insane and was known as Crazy Becky. The maternal grandfather was neurotic and a religious fanatic, given to temper tantrums during which he beat his horses and stamped on his plow. Maternal cousin known as Oddy Buek, the town simpleton. The mother was insane and spent some time in a state institution. She was a defective, as shown by examinations in the University of California Clinic during the trial, and yet she had been released from an institution and allowed to have children.

Psychiatric Lesson No. 1. "**The Hickman case indicates that this is a problem of elementary eugenics and that Hickman should never have been born; also that when a parent is released from an institution for the insane the state or a suitable social agency should supervise the patient and children**

with a view to preventing mental disease." This is a part of the present day mental hygiene program for any community.

The five children of Mrs. Hickman were brought up in Arkansas. The mother is said to have had a morbid fear of childbirth. The father deserted the family when Edward was 10 years old. Mrs. Hickman took her brood into the cotton fields where they earned a living. She constantly threatened to kill the children and often stood over them with a butcher knife or an axe. She belonged to the shouting or rolling sect of religious fanatics. During Edward's impressionable years, surely during his preschool years he constantly witnessed scenes of morbid emotional, excitement. Later he became interested in religious problems and wished to become a minister.

Psychiatric Lesson No. 2. **What would a state wide mental hygiene program, giving special attention to the children of insane mothers have done to prevent the murder of Marian Parker.**

When Edward was 12 or 13 years old the family moved to Kansas City. Edward worked his way through high school. He was president of the Webster Club, a debating society and one of the editors of the school paper. He spent a great deal of time in the library acquiring, no doubt, the numerous references to the classics which astonished his lawyers. Here he read of Frank Kraemer and other criminal celebrities. It has also been said that he sent out for books from his school library regarding famous crimes and criminals. Toward the end of his senior year in high school he entered an oratorical contest, winning second prize. His lack of size, nervousness and effeminate make-up contributed to make this a crushing blow to him in that he had worked until 4 or 5 o'clock in the morning on his oration. A series of severe, repeated disappointments followed. It is significant at this period that he always wished to be in the limelight and to figure as an orator and that he reacted very badly to personal slights and defeats.

Psychiatric Lesson No. 3. **When a student in our public schools shows symptoms of mental tension, it is always a good thing to refer him to a child guidance clinic, to a school counselor or visiting teacher. When a student is unusually interested in crime and shows marked emotional sensitiveness along any line, these crises in the school should stand out as danger signals and indicate the value of wise guidance before possible mental catastrophe.**

Edward went to California in January, 1927. He worked in the First National Bank as a messenger boy at $15.00 per week and lived in the home of friends. He became convinced that he needed a motorcycle and forged four checks to the approximate value of $100. Later, during the murder trial, it was discovered that he was an expert forger. He could copy his lawyer's signature so cleverly that the lawyer himself could not identify the forgery. At this time he was taken before the juvenile court in Los Angeles after spending several weeks in the county jail. His probation officer investigated the case with conscientious attention to all the details and events of the boy's home life, school record and the opinion of his employers. Mr. Parker was especially dumfounded as he considered the boy's services in the bank were very good. Edward was recommended for probation and released July 22, 1927. He did not have an examination by a psychiatrist.

Psychiatric Lesson No. 4. The community should take the blame and pay the penalty when it is willing to have the juvenile court function without the services of a competent psychiatrist. There is very little doubt that with complete psychiatric examinations, if the court were willing to follow through the recommendations of one well-trained psychiatrist or of a group of psychiatrists, but that Edward's mental condition would have been recognized and he would have been segregated or carefully supervised for the rest of his life. It is inconceivable that a juvenile court in any community can function without psychiatrists. We also see the advisability of having a better system of probation and of seeing that probation officers receive definite training. I know of a community in an eastern state where the probation officer is 77 years old and receives a salary of $40 a month for

his services. You can imagine his effectiveness in dealing with the active present day juvenile offenders. Psychiatric Lesson No. 4 is certainly a bitter one. There is more to this lesson in that the public which condemned Hickman so justifiably would be the first to make the same outcry if a psychiatrist made a recommendation for life custody not on the basis of what he had done but what he might do.

The last development in Hickman's gloomy drama shows that almost immediately after this juvenile court experience he started a career of crime. Why did the probation officer not check up on him? He stole cars, committed numerous robberies and at least one murder; that of Townsend, the druggist. During this period of probation he visited Philadelphia, St. Louis, Kansas City, Texas, Washington, D. C., and Chicago. In Cleveland he committed three street robberies in ten minutes. In Washington, D. C., he took in all the sights and had intended to kill the President. He stated that Providence was guiding him all the time and warned him that to kill the ruler of the country was too ordinary and had been done before. He then returned to Los Angeles to commit what he termed the master crime of the century. He certainly lived up to his desire. Edward did not know Marian Parker. She was pointed out to him by the school teacher when he went to the school to say that her father was ill. No one knows how deep this delusional grudge went against anyone who occupied a semblance of power and who could legitimately inflict humiliation. Psychiatrists speak of the mental mechanism of projection when the patient blames others on the basis of his own antagonistic ideas and hatred. Edward in killing Marian was perhaps in some obscure way of getting even with his own parent. "From the humanitarian point of view the monstrous injustice of this staggers us. From the point of view of what we, as a modern society, owe to the children we have permitted to be born to us, it makes us pause."

Psychiatric Lesson No. 5. **The mental mechanisms of a crime can usually be understood and evaluated by competent psychiatric studies. The early signs of a psychosis in Edward Hickman were definite and a well trained psychiatrist in detecting them could have prevented the terrible crime committed in California.**

The court procedure is of interest. First the judge refused a continuance to the defense sufficient to prepare for the importation of witnesses from Kansas City, stating, "We will give you 20 days to prepare and then hang him." The public, worn out with long delays in other trials and smarting from the criticism of the press, demanded to have the case heard at once without too much formality. The lawyer came on from Kansas City. It is said that moving pictures of court procedure were arranged for by the judge and fortunately stopped by a committee of the Bar Association. Later the trial was assigned to a different judge. The issue was solely that of insanity. **The defense lawyers offered to submit the case to a committee of psychiatrists appointed by the American Psychiatric Association. This was rejected by the prosecution which, unfortunately, is usual. Why do courts insist on having the ridiculous battle of so-called experts by refusing to accept a joint report from several competent and well trained psychiatrists?** The trial took five weeks. The jury was out forty minutes and they gave a verdict that Hickman was sane and that he should hang.

Psychiatric Lesson No. 6. **To have a jury pass upon the question of insanity at any time is an unintelligent, unscientific, unjustifiable, expensive and dangerous procedure."** A jury chosen from a community which has lost its sense of security and is terrorized by a crime is like submitting a question of science to an infuriated mob." Hickman talked freely. When his stories were checked up they were found to be true but no one believed him when he said he heard the voice of Providence and explained this crime by stating that he learned to listen to this voice and act immediately for if he stopped to consider, it was wrong. The testimony of the psychiatric army in this case was terrible and the publicity given it even worse. One of the prosecution alienists in the heat of the trial said to Edward,

"I would like to have you vivisected." Hickman promptly replied, "Doctor, you are as bad as I am." The attitude of the public was of great interest. None of the papers printed all the facts about the real Hickman. They never told the reader that he was an undersized, effeminate boy, looking not more than fifteen or sixteen. Clearly Hickman was dangerous and hanging seemed the only thing to have done. Even after confinement in his death cell he assaulted a cell mate so severely that he had to be taken to the hospital. He committed a major crime every six months and several minor crimes in the concluding drama of his criminal career.

Psychiatric Lesson No. 7. **"Can we expect the community to turn its attention to the causes of the crime until the criminal has been rendered no longer dangerous? We cannot think of prevention while we are terrorized and prejudiced. Is it not reasonable to ask the court, the press and the psychiatrists to present the whole truth to the end that our abhorrence may be fastened upon the causes which produced the deed rather than upon the criminal himself?"**

I have quoted and abstracted largely from the accurate report of "Why Hickman Hangs," written by Dr. Miriam Van Waters. I do not know of any case that so clearly brings out many of the leading psychiatric aspects of dealing with the crime situation. I will not burden you by quoting an even more remarkable case, especially from the viewpoint of legal procedure; that of the acquittal of George Remus in Cincinnati. **He was found sane by the psychiatrists and insane by the jury.** These two cases when combined with the Leopold-Loeb medico-legal atrocity several years ago, indicate that changes are needed in our legal and medical machinery. Fortunately changes are rapidly being developed by some of our eastern states. The Baumes Laws enacted by the New York Legislature in 1926 chiefly provide for life imprisonment of all offenders on their fourth sentence. For second offenders the minimum sentence must equal the maximum that they could have received for the first offense and the maximum of what may not exceed twice the length of that term.

Since these laws went into effect in July, 1926, uniform testimony of their success has been obtained from all quarters.[3, 4, 5] Quoting from the Crime Commission report of February 28, 1927, we have the following remarkable testimony of their success: Just before this law went into effect there is a description of a bums' rush to prison, the most remarkable spectacle ever seen in this country. Prisoners began changing their pleas from not guilty to guilty. They insisted on helping the district attorneys, the courts and the state in every way possible in order to get into Sing Sing before midnight of Wednesday, June 30th. In many instances the criminals themselves studied these laws carefully and they certainly feared them, demanding speedy trials and fast trains to Sing Sing. Police Commissioner McLaughlin in his recently published annual report, referring to the Baumes Laws, says, "The Police Department's experience since this law and the other so-called Baumes Laws took effect, leads us to the positive conclusion that up to date they have had a very deterrent effect on individuals pursuing a criminal course. Our experience is based on actual contact with criminals, and from the information disclosed to the police it is evident that criminals have a genuine fear of these laws." He testified before the Crime Commission that during the months of July, August and September of 1926 there were 161 fewer robberies in New York City than in the corresponding months of 1925, a decrease of 45 per cent in this one class of crime alone in this short period. He also testified that in cases of assault and robbery in that same period there had been a decrease of 50 per cent, there having been but 42 such crimes reported to the police in that period, as against 87 the year before. Previous to the Baumes Laws this class of crime was clearly on the increase in New York, for instance, in the first six months of 1926, the number of assault and robbery cases in Manhattan jumped to 501, as against 425 for the same period in 1925. Police Commissioner McLaughlin states that there is no doubt but

that the Baumes Laws reaches the habitual criminal with a long known record. He also states that this type of criminal cannot be changed by reform; that he has succeeded in beating the case year after year, starting with a petty crime and continuing his career of crime with more serious crimes, even killing policemen when he feels that it is necessary. He state that the Baumes Laws have effectively aided the police department. When a gunman with a long record knows in advance that if he is caught it means life imprisonment or an added sentence for using a gun without any chance to sway the court by promises of good behavior or to beat a stiff sentence with a plea of guilty, its effectiveness will be even more apparent. District attorneys within New York City testified also that the Baumes Laws have been a marked crime deterrent, where there has been a decrease of 40 per cent as compared with the corresponding period of the preceding year. The statistics collected and published week by week in one of the great metropolitan dailies showing the extent of major crimes in other cities are equally illuminating testimony to the success of these laws in keeping down crime in New York City. They show the following proportionate rate of crime per 100,000 population:

New York	4.7
Chicago	9.6
Philadelphia	16.5
Detroit	28.9
Los Angeles	20.8
St. Louis	18.5
San Francisco	30.8
Toledo	24.7

Statistics from Warden Crawford of the Colorado State Penitentiary show for the biennial period ending Nov. 30, 1926, there were 197 repeaters out of 1,014 received (19.4 per cent), and for the biennial period ending November 30, 1928, there were 318 repeaters out of 1,062 received (29.8 per cent). We cannot continue having a merry-go-round of in and out of the penitentiary increasing year by year. The statistics I have quoted regarding the Baumes Law probably are misleading in that professional and habitual criminals are leaving New York and Michigan and migrating to Colorado and other states.

The surety companies whose business it is to write policies for burglary and robbery insurance give the following statement: Robbery, burglary and hold-up losses have been reduced 29 per cent. In the last six months of 1925 insurance paid in greater New York was $135,607.97. In the closing half of the year during which the Baumes Laws were in effect claims paid amounted to $96,091.68.

The warden at Sing Sing testifies that these laws are serving as a deterrent in that the number of fourth offenders has decreased in number by 46 per cent in the five months' period during which the laws were in operation. It also has a general effect in reducing the number of new prisoners as evidenced by the fact that during the month of October there were only 110 new prisoners received in Sing Sing as compared with 141 in the same month the year previous.

Letters sent to 62 district attorneys and county judges throughout the state of New York indicate a predominant support of the Baumes Laws. Justice William H. Black of the Supreme Court states, "Had work of this kind been done twenty years ago, the taxpayers of the state would not now be bearing the burden of housing and feeding an army of professional criminals, nor would they be paying pensions to maimed and murdered officers of the law and their dependent families."

What would the Baumes Laws have accomplished in the case of Eddy Ives, a habitual criminal? The findings in this case are as follows:

1. The Denver City Charities have a record of this individual dating from early childhood showing advanced and progressive criminal tendencies.

2. The police and court records show that he began his criminal career in 1898 and received a suspended sentence to the State Industrial School at Golden. In 1904 he was sent to the State Reformatory at Buena Vista for grand larceny. In 1906 he started a 3-year term in the Oregon State Prison. In

1914 he was in prison in Salt Lake City for burglary. In 1916 he was sent to Canon City for ten years for burglary. In 1920 he escaped from Canon City and after another robbery was returned. In 1924 received another term there. In 1927 went back again. Reasons for parole both times from Canon City were not ascertained. On November 16, 1928, he killed a splendid policeman and a negro woman.

Suppose Ives is not hung but receives another prolonged sentence. In how many years will he be again free to continue his burglary and homicidal acts? Surely with a psychiatric classification of offenders and complete studies before parole this crime and many similar crimes could have been prevented. How many similar cases are now at large in Colorado and would it not be worth while to develop careful statistical studies, probation and methods of follow-up and scientific parole of criminals?

In the preparation of this paper I was surprised to learn that statistics from the West Side Court were not available and that the information for which I asked about the number of criminal repeaters each year, the type of sentences received, could not be obtained.

I have indicated in this paper the absurdity of many medico-legal procedures now in vogue. **Surely the day of the so-called battle of experts is passing and is condemned by all representatives of the public and professional groups.** The psychiatric field for decades has realized the defects in this system, both on the medical side and from the viewpoint of cumbersome, time consuming, sleep wrecking, legal technicalities, apparently unchanged for centuries. Is it possible for a psychiatrist called for the prosecution or for the defense to give non-partisan testimony when these procedures continue to be used? Is it possible for a jury to pass on detailed medical questions regarding insanity which require careful scientific study and years of training to decide? Is it possible, allowing for a certain degree of intelligence in psychiatrists and the public in general, that the obsolete and very annoying hypothetical question can be endured even by the most patient of us? These procedures have been strongly condemned by committee action of the American Psychiatric Association.[6, 7] Medical considerations are brushed aside with a startling deliberateness not flattering to the psychiatrists of our community or to the staff of your Psychopathic Hospital. Years of experience in psychiatry, close study, research and some understanding of the medical phase of this situation carry no weight in many instances and the jury decides puzzling, difficult, complicated medical issues. Would it not be equally sensible to have the jury decide about the localization of a brain tumor or the indications for an appendix or gall bladder operation as well as the type of instruments the trained surgeon should use?

The Colorado Law of 1927 whereby criminals making a plea of insanity may be sent for observation to the Psychopathic or State Hospital has been often quoted as an improvement in this situation. Possibly so for a legal weapon, but it is deplorable to mix criminals with early and remediable types of mental disease and defects, the purpose for which the State Psychopathic Hospital was provided. It indicates a return to the medieval idea of grouping individuals having mental disorders with criminals. I cannot object too strenuously to this mixture and feel the state should provide separate quarters for the observation of criminal cases. A separate institution for the observation of the criminal insane should be provided in connection with our penal institutions. Despite the fact that we have no building, room, facilities or personnel for this purpose, we have arranged facilities on two of our six wards and handled this problem as well as we could along with the admission rate of approximately 700 patients annually, making our Psychopathic Hospital, I am glad to say, the second active one in the country as far as service to the entire state is concerned.

Since the 1927 law went into effect forty cases have been received at the State Psychopathic Hospital. Recommendations given to the court were followed out in 57.5 per cent; they were not followed out in 17.5 per cent; no action of the court in 25 per cent.

In one case, that of S. F., a man who was diagnosed as having a paranoid psychosis, studied very carefully and a report in agreement submitted by Dr. Delehanty and myself, nothing was accomplished in that the prejudice of the local community and the legal procedure through the jury promptly decided the issue. This man received a sentence of nine years in the state penitentiary. He is definitely psychotic and I think at least nine out of ten psychiatrists would agree with our opinion. At least it was not the type of a case that offers many controversial possibilities.

At the end of a few years this individual, in accordance with our accepted standards, may be discharged directly back to the community in an even more advanced mental condition. He will most likely again become a menace to the community and may possibly decide to square up accounts and shoot it out again when he is discharged in 1938.

Another phase of this situation is the question of allowing numerous psychotic individuals in the penitentiary. We read some time ago of a dangerous assault in our penitentiary, made most likely by a psychotic individual. Two other prisoners were severely injured. Wardens for years have pleaded for a change in this situation. For instance, at Sing Sing, where they first organized a psychiatric clinic, it was shown by the psychiatrist that 12 per cent of the population had been known to be definitely insane and in addition 18 per cent irresponsible psychopathic individuals.

I do not know of any more gloomy, irrational, social waste than our present medico-legal methods of dealing with the crime situation. It seems to me that it is possible to change these legal procedures even if it requires constitutional amendment, in order better to co-operate and to co-ordinate a medical and legal program to really safeguard the community from the ravages of the criminal. Surely this is the joint desire of the splendid psychiatrists, judges and lawyers I have had the privilege of knowing in Denver and throughout the state.

I realize the inadequateness of this preliminary report but would like to suggest in conclusion the following steps which might be helpful in a state program to deal with our criminal situation:

1. The elimination of partisan testimony and the so-called battle of experts through approval by legislative action of the creation of a commission of three psychiatrists appointed by the court. A majority report of this Psychiatric Commission regarding the mental condition of the defendant is to be accepted by the court. These psychiatrists are not to testify in court but can be questioned by the judge in the presence of lawyers on both sides. This would take away the power of the jury in rendering a verdict concerning medical questions. (In accordance with the committee reports by the American Psychiatric Association.)*

2. Through legislative action, chronic offenders and recidivists should have complete mental examination by the Psychiatric Commission. Recommendations for their permanent legal detention of repeaters should be made based on the findings of complete psychiatric studies.

3. The creation of a Psychiatric Clinic in the State Penitentiary and other penal institutions for:

(a) Classification of all prisoners to acquaint the prison authorities with their mental characteristics; to help in the assignment of work; to see that the criminally insane are treated and segregated in an appropriate institution, preferably on the penitentiary grounds.

(b) To be of service to the prisoners themselves through examinations and treatment, and to help them make adjustment before and after their discharge.

(c) Research work concerning the causes of crime and the best methods of treatment and prevention.

(d) To establish routine psychiatric examinations of all prisoners at least one month before they are brought up for parole or discharge. Parole or discharge to only be granted if indicated following complete social and psychiatric studies. In certain types (as in the Ives case) parole should never be granted. The prisons should create a parole board and no prisoner should be

*Vote of The National Council of the National Economic League: 813 for, 118 against.

paroled unless the report of the board is unanimous. On violation of parole the prisoner should serve out the rest of his sentence and the maximum for his second offense and be considered as a second offender (as in Baumes Law of New York).

4. Arrangements should be made and enforced whereby the prisoner has regular supervised employment while serving his sentence. Their earnings should be applied to reimburse the state for their care and maintenance, to support dependent relatives and to make restitution to persons injured by their criminal activities. For this, proper colonization methods should be developed in Colorado.

5. The passage by the legislature of the Baumes Law modified so that all repeaters considered to be dangerous in type by psychiatric examination are promptly segregated for life, as well as all fourth offenders.

6. The creation of a separate building or wards to care for the criminally insane at the penitentiary. Arrangements for the training of lawyers in the relation of criminal law and psychiatry through a course of instruction should be provided here. The three law schools of the state should arrange their curriculum to take in this work, and district attorneys and lawyers specializing in criminal law should serve a period analogous to a medical internship in this institution. (White.)[8]

7. The positions of judges of criminal courts and district attorneys should be permanent, appointment being based on the results of a competitive examination and the fulfillment of requirements for such positions should consist of a knowledge of modern criminology and its various ramifications. (White.)

8. Establishment in connection with our courts of adequate probation and statistical facilities.

9. The creation of a Colorado crime commission to conduct careful studies and formulate data as to the causes and effects of crime, condition of our present penal institutions, courts and legal and medical procedures with appropriate recommendation for legislative enactment. This commission is to co-operate in every way possible with the National Crime Commission and should freely utilize the splendid reports previously published.[9, 10, 11, 12, 13, 14, 15, 16, 17, 18]

BIBLIOGRAPHY

[1]Parsons, Philip: Crime and the Criminal. Albert Knopf and Company, 1926.

[2]Van Waters, Mirian: Why Hickman Hangs. Survey, October, 1928.

[3]Report of Crime Commission. Legislative Document. 1927. No. 94.

[4]The Crime Laws. Advocated by the Joint Legislative Committee on the Co-ordination of Civil and Criminal Practice Acts of 1926 and Crime Commission of New York State of 1927. Crime Commission of New York State. J. B. Lyon Company, Albany, 1927.

[5]The Crime Laws. Advocated by the Crime Commission of New York State, 1928. J. B. Lyon Company, Albany, 1928.

[6]Report of the Committee on the Legal Aspects of Psychiatry with Discussion and Final Disposition Thereof. Presented at the Eighty-third Annual Meeting of the American Psychiatric Association, Cincinnati, Ohio, May 31, June 1, 2, 3, 1927. Reprinted from American Journal of Psychiatry, Vol. VII, No. 2, September, 1927.

[7]Report for the Year 1927-1928 of the Committee on the Legal Aspects of Psychiatry of the American Psychiatric Association. Reprinted from American Journal of Psychiatry, Vol. VIII, No. 2, September, 1928.

[8]White, Wm. A.: Insanity and Criminal Law. McMillan and Company, 1923.

[9]The Crime Commission of New York State. A Special Report on the National Conference at Washington on the Reduction of Crime, 1928. J. B. Lyon Company, Albany, 1928.

[10]The Crime Commission of New York State. Individual Studies of 145 Offenders by the Subcommission on Causes and Effects of Crime, 1928. J. B. Lyon Company, Albany, 1928.

[11]The Crime Commission of New York State. Report to the Commission of the Sub-commission on Penal Institutions, 1928. J. B. Lyon Company, Albany, 1928.

[12]The Crime Commission of New York State. Report to the Commission of the Sub-commission on Police, 1928. J. B. Lyon Company, Albany, 1928.

[13]Report of the Crime Commission, 1928. J. B. Lyon, Albany, 1928.

[14]The Crime Commission of New York State. Report to the Commission of the Sub-commission on Statistics, 1928. J. B. Lyon Company, 1928.

[15]The Crime Commission of New York State. From Truancy to Crime—a Study of 251 Adolescents. By the Sub-commission on Causes and Effects of Crime, 1928. J. B. Lyon Company, Albany, 1928.

[16]The Crime Commission of New York State. Report to the Commission of the Sub-commission on Courts, 1928. J. B. Lyon Company, Albany, 1928.

[17]The Crime Commission of New York State. Special Reports to the Commission on Firearms Legislation and Psychiatric and Expert Testimony in Criminal Cases, 1928. J. B. Lyon Company, Albany, 1928.

[18]The Crime Commission of New York State. Report to the Commission of the Sub-commission on Adjustment of Sentences, 1928. J. B. Lyon Company, Albany, 1928.

NEWS NOTES

Dr. Royal Calkins of Cortez, Colo., has been recently honored by being made Speaker of the House of Representatives of the State Assembly. Dr. Calkins is one member of the Colorado State Medical Society who manifests a commendable interest not only in the scientific pursuit of the profession but also a constant attention to political matters.

Dr. George Curfman of Salida, Dr. William Senger of Pueblo, Dr. L. W. Bortree of Colorado Springs and Dr. Crum Epler of Pueblo have been in Denver recently on things of Society interest.

Dr. T. E. Carmody was recently in New York attending the Board meeting of the American Society of Otolaryngology.

Dr. E. J. Brady of Colorado Springs is in Denver as a member of the General Assembly. He has been entrusted with the chairmanship of the Committee on Medical Affairs of the House.

Dr. and Mrs. Henry Sewall have just completed a pleasant vacation in La Jolla, Calif. They are expected home the first of February.

Dr. H. J. Corper was invited to present two scientific papers before the California Tuberculosis Association at its tenth annual meeting at San Jose, Calif., Dec. 28, 1928.

The Rocky Mountain News of Jan. 23, 1929, made editorial comment under the caption Humanitarian Science as follows:

"Drs. Corper and Uyei—names which denote that East and West can come together under the twin-banner of humanity and research—are entitled to the thanks of more than abstruse science for being able to substitute an Irish potato for a live animal in their investigations of tuberculosis.

"Animal lovers the world over will thank them and pray that they may be able to extend their work to wider fields through the use of vegetable subjects. The vegetarian kingdom, as a noted East Indian demonstrator has convinced the scientific world, has feelings kindred to those in the animal world, although in a minor degree, but to put the two on an equality would be getting things to a too fine drawn out point and make vegetarians ashamed of themselves. A vegetable draws from air and earth and is seldom polluted.

"Research work of the two pathologists at the National Jewish Hospital in Denver has been accepted by the most influential scientific organization in the country and the money award given will be employed in the same good cause.

"The hospital in question has a splendid record not only in advancing the cause of pure research in a field that it has made its own, but in alleviating the sufferings of unfortunate human beings. Its distinguishing characteristic is that it is scientific and at the same time humanistic. It has a noble tradition to uphold in both discovery and charity which has been translated into love."

To All Physicians and Surgeons in the State of Colorado:

The State Medical Society of Colorado has, at several consecutive annual meetings, recommended the passage of a law requiring annual registration of all licentiates of the State Board of Medical Examiners. The necessity for this law appears from the following facts:

Under the present law no provision is made for keeping the State Board of Medical Examiners advised as to whether any licentiate remains in Colorado after receiving his license or leaves the State, or, if he remains within the State, as to where he locates, or whether he continues in the practice of his profession or abandons it. If a stranger comes into the State and commences to practice without obtaining a license, no person thinks to inquire whether or not he is licensed and the board is not informed of his presence witin the State. Whenever it some to the attention of the secretary-treasurer in an unofficial way that a licentiate has died, a notation of that fact is made on the licentiate's record, but in most instances the secretary-treasurer has no means of knowing whether a licentiate is living or dead. In more than one case, old licenses have been obtained by theft or purchase from licentiates who have left the State or from representatives of deceased licentiates and the procurer of such license has come into Colorado and practiced under the name of the former licentiate. In some cases, licenses have been forged and recorded in the office of local county recorders without being presented to the board and the perpetrator of the fraud has practiced for years under such license before discovery. A few years ago, the secretary-treasurer of the board, upon reading in the newspaper that the president of a county society on the Western Slope had died, went to his books to make a notation of the fact of the death of the licentiate and discovered that the decedent had never held a license in Colorado, although he had practiced here for years and had been received into the local society in good standing.

The proposed law will require that the secretary-treasurer mail a blank form to each licentiate in the State during the month of December of each year and the licentiate will be required to fill out such form and return to the secretary with an annual registration fee between the first day of January and the last day of February of each year. The affidavit will give the name and address of the licentiate and will require him to state on is oath whether or not he is actively engaged in the practice of his profession at the time. Shortly after the first of March, of each year, a list of all licentiates in each county will be published, so that every one will have an opportunity to know whether any practitioner is practicing without a license.

You are urged (a) to give your hearty support to this law, (b) to cause your local society to hold a special meeting and adopt a resolution favoring it, and (c) to call upon or write to your Senator or Representative in the State General Assembly at once, urging him to support the bill.

Cordially yours,

PHILIP WORK,

Secretary-Treasurer of the Colorado Medical Society.

Notice

The Colorado Psychopathic Hospital is desirous of securing a new strain of malaria for inoculating purposes. Any physician having a patient with tertian malaria will be rendering a service by communicaitng with that institution.

Notice

The 4th annual clinic of the medical school and hospitals will be held March 20th, 21st and 22nd.

"A woman can make a fool out of you in ten minutes."

"Maybe, but think of those ten minutes."—Texas Ranger.

MEDICAL SOCIETIES

COLORADO OPHTHALMOLOGICAL SOCIETY

DR. EDGAR F. CONANT, PRESIDING

November 17, 1928.

Fragment of Steel in the Lens

Dr. David A. Strickler, Denver, presented Mr. A. E., age 33, mechanic. On October 30, 1928, while removing a piston pin with a hammer and punch, the patient felt something strike the right eye. There was very little pain at the time but "water came out of the eye." Examination showed a corneal perforation 2 mm. in length, slightly temporal and below the center extending in the direction of 7 o'clock. A piece of bright metal was seen in the lens at the outer margin of the pupil pointing into the anterior chamber. The iris was not injured nor in contact with the fragment.

At operation, the original wound was enlarged, the foreign body drawn forward to the cornea by a hand magnet, held in front of, but not in contac with the cornea. The point of a scissors was introduced through the corneal wound and the magnet now applied to the scissors. The foreign body came away with the scissors. Cyanide of mercury 10 minims of 1 to 2000 solution with watropin was injected subconjunctivally.

At the present time, November 17, 1928, the eye is quite red and irritable. There is lens substance in the anterior chamber, a certain amount of which has been absorbed. Dr. Strickler was interested in obtaining the discussion of the members relative to additional surgical interference.

Discussion. Dr. Frank R. Spencer and Dr. William H. Crisp stated that a keratome incision, followed by a release of the lens substance, was in their opinion advisable. Perhaps a needling might be necessary at a later date.

Dr. Strader has used for this purpose a suction apparatus devised by Dr. Dean of Council Bluffs, Iowa.

Dr. Edward Jackson said that although broken up lens material does keep up inflammation and irritation, surgical interference should depend upon the length of time that the inflammation has persisted. In this case the lens is greatly broken up, but it is to be remembered that broken up lens, in capsule, frequently does not keep up irritation. The removal of lens material is helpful but this eye is quieting down, therefore surgical interference in this eye should be delayed.

Ptosis—Tansley-Hunt Correction

Dr. Frank R. Spencer, Boulder, showed Mr. E. H., age 39. In September, 1916, he had done a bilateral operation for congenital ptosis by the Tansley-Hunt method. At the present time the upper lids cover the upper third of the pupillary area of the cornea, even when the frontalis muscle is used to elevate the lids. At the time of the operation it was impossible to correct the ptosis more than it has been and at the same time permit proper closure of the lids. He now has good lid closure, but it is doubtful if he would have if the upper lids had been elevated by surgical interference to a greater extent. This patient was presented to the society several years ago. At that time one of the members believed that the epidermis should have been removed from the pedicle in order to avoid the danger of epidermal cysts. The result has been entirely satisfactory for the past twelve years.

Congenital Cataract-Needling

Dr. Spencer also brought Master T. B., age 9. The vision prior to the needling was 2/60. The left eye was blind; microphthalmus, enophthalmos, minus tension and congenital cataract were evidenced.

The right eye is now aphakic as a result of a needling done some years ago. There are fine dust like vitreous opacities. The vision with a +15.00 sph. is 6/4 -3.

Discussion. Dr. William M. Bane asked as to the age of preference for needling a congenital cataract.

Dr. Spencer replied that he had done a few as early as two years of age.

Dr. Edward Jackson is disposed to wait three or even five years. There will be no hindrance to the vision or mental development, even if the cataract is complete.

Hyperopia—The Result of Loss of Vitreous.

Dr. James M. Shields, Denver, exhibited two cases to illustrate the change in refraction due to vitreous loss.

The first patient, Mr. L. H., age 19, was shown before this society last spring. The sclera of the left eye had been ruptured, about 4 mm below the limbus and a little to the temporal side, by a flying pheasant which came directly through the wind shield and struck the left eye. A very considerable amount of vitreous was lost. The scleral wound was covered by a conjunctival flap, atropin was instilled, the patient was put to bed and milk injections were given. The eye made an uneventful recovery.

The second patient, Master W. A., age 12, on October 4, 1928, was tapping a loaded number 12 cartridge with a heavy pocket knife. The shell exploded and a piece of the shell, about 4 mm in diameter, almost flat and with jagged edges, went through the lower left lid, just above the lower orbital margin. It penetrated the lid and made an incised wound through the sclera about 5 mm below the lower limbus, permitting the escape of vitreous. No uveal tissue presented through the wound and the scleral wound was horizontal, about 4 or 5 mm long and as straight and clean as if cut by use of a Graefe cataract knife, was covered by a conjunctival flap. Under atropin and dionin the eye made an uneventful recovery. There is slight retraction of the iris below.

Both of these left eyes, in the two cases presented, get good vision with lenses, but both have required the use of plus lenses greater than the fellow eyes, because of vitreous loss with resulting lessening of the size of the globes. The refractions follow:

Case 1. Vision O. D. 20/16 with plano. O. S. 20/24 with +1.50 D. Sph. $\frown$ -0.25 D. cyl $\times$135.

Case. 2. Vision O. D. 20/16 with +1.00 D. sph $\frown$ -0.25 D. cyl$\times$120°. O. S. 20/20 with +2.75 D. sph. $\frown$ -0.25 D. cyl$\times$60°.

Discussion. In reply to Dr. Spencer's question as to whether any vitreous opacities had developed in these cases, Dr. Shields said that the vitreous was perfectly clear in both cases.

"Mulberry" Macula.

Drs. William C. and William M. Bane, Denver, presented Mr. D. C. L., age 72. This patient first presented himself in May, 1919, complaining of failing vision of the right eye for two or three months. The left eye was injured about forty years previously and has never had good vision since. The failure of the better eye was causing him considerable concern.

The examination at that time revealed the vision of the right eye to be 5/20–1, and of the left eye the hand as a moving object at one foot. The lens of this eye was cataractous. The media of the right eye were clear and no pathology was noted in the fundus. With a correcting lens the vision in the right eye was improved to 5/10.

The patient was next seen in March, 1923, complaining that the vision of the right eye was worse. The examination showed the vision to be reduced to 5/60–, but with correction was improved to 5/10. In February, 1925, he could read only large type. His glasses improved the vision to 5/15–. At this time, a small area of degeneration with a dark center, was noted in the macula. In March, 1927, the vision, with correction, was reduced to 5/30+.

The patient reported again November 13, 1928, stating he could no longer read the newspaper. With his glasses he could read 5/30 with great difficulty. With dilated pupils, the left lens showed the cataractous opacity as before. Above the upper edge of this opacity, a poor glimpse of the fundus was obtained. Light perception was very uncertain with this eye. The right cornea lens and vitreous were essentially negative, but it was observed that the right macula was not normal in color, there being seen at this place a round red disc about one-quarter the diameter of the disc in size, with margin sharply defined, seen better with red free light, and about on a plane with the surrounding retina.

The blood pressure at present is 190 systolic; 120 diastolic. The urine shows a trace of albumin, but no sugar. The teeth are bad and need attention or extraction.

Discussion. Dr. William H. Crisp thought that the pathology of the picture was a speculative affair. Perhaps a breaking down of choroidal vessels with a cluster formation of new formed vessels.

Senile Degeneration of the Macula

Dr. William C. Finnoff, Denver, showed Mr. W. O. S., male, 56 years of age, traveling salesman. He was seen first June 15, 1928, with a history of failing vision in the right eye of two months' duration. The vision of the left was unchanged. Other than a refractive error, the eyes have always seemed good. No history of trauma, inflammation, or illness of consequence, in the past. Vision with correction R 20/100, L 20/50. Ophthalmoscopic examination revealed in the right a slight vitreous haze and a waxy yellowish disc with indistinct edges. Slightly above the macula an oval slatey-red area of chorioretinal infiltrate, about ¼ dd. across, was noted. The area did not seem elevated and the small vessels passed over its surface. The lesion suggested a cellular exudate in the choroid with early disintegration of the pigmented epithelium. A central scotoma was found. In the left eye extensive changes were found in the macular region. There was a round area with a light center and finely pigmented border. An oval area, about one-half its size, surrounded by dense pigment, extended to the temporal side. In addition several areas, in which the pigment had absorbed, were seen. The vessels were fair. The Wasserman reaction, prostate gland, urine and teeth were negative. The maxillary sinus on the right side was slightly cloudy to x-ray; the tonsils were infected and tenderness found over the gall-bladder. The tonsils were removed and the antrum drained without improvement in the eye condition.

At the present time the vision of the right eye is 20/200, left 20/60. The lesion in the right is darker than it was in June. It is slightly elevated and several small drusen are present in the upper temporal portion of the macula. A very small yellowish oval area has appeared at the nasal margin of the original lesion just above the horizontal meridian. The left eye has remained stationary.

Congenital Absence of Abduction—Left Eye

Dr. W. A. Sedwick, Denver, brought Miss A. C., 10 years of age. She came on October 6, 1928, complaining of inability to read and occasional headaches.

Family history: Nothing could be learned about her eyes and only a little about her general history, as the child was an inmate of one of the state institutions.

Personal history: She is of about normal growth, but mentally very backward, hard to manage, morose, very nervous, and apt to cry easily. No other pathology except what is about to be described.

Present history: Examination revealed that attention was called to the eyes because playmates said that she was cross-eyed at times. There was no evidence of injury at birth or subsequently, and externally the eyes seemed normal. Irides reacted normally. Eyes were parallel when looking straight ahead. When looking to right both eyes rotated normally; when looking to left, O. D. rotated normally, but O. S. stopped at the mid-line. There was no nystagmus, no diplopia complained of and no inconvenience whatever. No retraction of eye-ball, but there may have been a slight closure of the lids of the affected eye when adducted. Blood Wassermann negative. Vision O. D. 16/40, O. S. 16/50. Under homatropine, vision O. D. with +.25 D S = +.50 D. C. ax. 90=16/16. O. S. +125 D. C. ax 90= 16/20–.

Intraocular Steel Fragments

Dr. W. H. Crisp discussed four recent cases of hand magnet extraction of intraocular steel fragments. In two cases the fragments had been unusually large, and in each of these cases the fragment had lodged at the back of the eye, very close to the optic nerve. In one of these two cases the lens was uninjured and the fragment could be seen lying in the cut choroid close to the nerve entrance; while in the second case the lens was cataractous but x-ray localization indicated a similar position. In the first case the foreign body had been extracted the day after the injury, through a scleral incision, and the day after the extraction a profuse flow of exudate had developed through the passage of entry of the foreign body, that is through the iris and cornea. It had ultimately been necessary to remove this eyeball, and it appeared likely that the eye might have to be removed in the second case, although in this eye the secondary inflammation had been more sluggish in character. In the second eye a very thick band of fibrous tissue had developed in the line of entry of the foreign body, between cornea and iris and lens. Should an attempt be made to cut this band because of its possible influence in maintaining inflammation?

From the operative standpoint, the most interesting case had been one in which an extremely delicate filament of steel, four millimeters long, had penetrated the eye after being thrown off from the edge of a die in which a punch was being set with a lever. A portion of this fragment was barely visible in the angle of the anterior chamber, and x-ray localization by the Sweet method had shown the foreign body to extend

through the cataractous lens almost to the posterior pole of the lens. The wound of entrance was through the conjunctiva just outside the limbus. On account of the risk of entangling the foreign body in the iris if a blind attempt were made to remove it with the magnet, the partially healed conjunctiva had been elevated, the tiny puncture in the sclera felt for with a blunt point, and a small Graefe knife then entered through the wound of entrance into the angle of the anterior chamber, a small incision being made first downward and then upward from the point of entrance. Narrow, blunt-pointed scissors were then held closed, barely within the lips of this surgical opening, in line with the linear foreign body, the magnet tip held against the scissors, and the current turned on; the foreign body being immediately withdrawn.

Retro-bulbar Neuritis

Dr. Donald H. O'Rourke, Denver, presented Mr. H. Y., age 24, whom he had first examined on October 23, 1928. He complained of gradual loss of vision in the left eye, noticeable over a period of two days, at the end of which time the vision was "lost entirely". He was first examined eight days after the beginning of his trouble. The right eye was normal in all respects and the vision was 6/6+. The left eye was blind; no perception of light; the pupil reacted to light promptly but was poorly sustained. The rotations of the globe were full in all directions and occasioned slight pain, as did also backward pressure on the globe. The ophthalmoscopic evidence of pathology was extremely meager. There was questionable swelling of the disc, between one and two diopters, with faint obscuration of the nasal margin, certainly very little evidence to account for a blind eye.

The patient was in good health. His blood picture was normal; urinalysis negative; blood and spinal fluid Wassermann negative. There has been no recent illness of any nature. The medical and neurologic consultations gave no help.

X-ray examination of the sinuses showed sufficient evidence to warrant surgical interference. A sub-mucous resection was done, left turbinectomy of middle turbinate; left posterior ethmoid cells exenterated and left sphenoid sinus drained. On October 29, the right antrum, sphenoid and ethmoids were drained. The patient was discharged from the hospital on November 13, 1928.

On November 14, the vision O. S. was 6/20; the swelling of the disc was gone but the nasal margin was hazy. The temporal half of the disc was paler than the corresponding part of the right disc. On November 24, the vision O. S. was 6/6+; the peripheral field was very slightly contracted; there as a relative central scotoma for red and green of indistinct outline.

The etiology may have been the affected sinuses but the picture is possible as an early manifestation of multiple sclerosis.

Discussion. Dr. William C. Finnoff cited a case, which he had followed carefully. The first attack acted very similar to the case just described—but nine months later a second attack of retro bulbar neuritis was accompanied by a paralysis of the ipso-lateral sixth nerve. The vision again improved but subsequent attacks and developments definitely established the diagnosis of multiple sclerosis.

DONALD H. O'ROURKE, Secretary.

"I see you have a run in your stocking."

"I'm not wearing stockings; that's a fingernail scratch."—Temple Owl.

LARIMER COUNTY

The regular January meeting of the Larimer County Medical Society was held January 2, at the Northern Hotel, where the following officers were installed:

Thad C. Brown, M.D., President; Victor E. Cram, M.D., Vice President; Lowell Little, M.D., Secretary; J. M. Stewart, M.D., Treasurer; P. S. McHugh, M.D., Delegate; W. B. Hardesty, M.D., Censor; and A. S. Joslyn, M.D., Alternate.

After dinner Harry Wear, M.D., of Denver, the guest of the evening, gave a paper on bladder tumors.

The paper was discussed by Drs. McHugh, Beebe, Hardesty, Newsom and Taylor.

This was followed by an address by Thad Brown, M.D., the new president, who outlined a very interesting program for the year.

Chas. H. Platz, M.D., was elected to membership.

Members of the faculty of the Veterinary Department of the Colorado Agricultural College were also guests.

Dr. and Mrs. W. A. Kickland are enjoying a six weeks' tour in California.

E. L. Morrill, M.D., is improving under hospital care and expects to return home shortly.

LOWELL LITTLE, Secretary.

ANNUAL MEETING OF THE AMERICAN ASSOCIATION FOR THE STUDY OF GOITER

The annual meeting of the American Association for the Study of Goiter will be held this year at Dayton, Ohio, on March 25, 26 and 27. The primary object of this association is to bring together each year men who are especially interested in the study of goiter and its associated problems. Members of state and provincial medical societies are eligible and cordially invited to participate as attending members.

The headquarters will be at the Hotel Miami Dr. William A. Ewing is president of the Montgomery County Medical Society under whose auspices the meeting is to be held. Dr. E. M. Huston is the general chairman of the Committee on Arrangements. Dr. H. C. Haning is chairman of the Hotel Committee. All communications in regard to hotel reservations should be addressed to Dr. Haning at the Reibold Bldg., Dayton, Ohio.

BOOK REVIEWS

Thrombo-Angiitis Obliterans. Clinical, Physiologic and Pathologic Studies. By George E. Brown and Edgar V. Allen, Division of Medicine, Mayo Clinic, collaborating in Pathology with Howard R. Mahorner, Fellow in Surgery, The Mayo Foundation. Illustrated. Philadelphia and London: W. B. Saunders Company, 1928.

Present in a small volume the real meat in that obscure group of arterial diseases which Buerger did so much to emphasize.

Jaboulay and, later, Leriche by their periarterial sympathectomy greatly stimulated interest and study in these up to now maiming or fatal diseases.

Brown, Allen and Mahorner in collaberation have carefully studied the large material available at the Mayo Clinic. They have succinctly expressed as the result of their efforts many clinical facts. Brown repeatedly empha-

sizes that a knowledge and use of these facts by the clinician should make a diagnosis much easier than is now the case.

Accepting the observation and favorable experience of Royl, Adson has performed with marvelous results sympathetic ganglionectomy for this class of arterial disease, not only in the lower but also for that in the upper extremities.

This volume is filled with much valuable and stimulating information which no physician can afford to overlook.

C. F. HEGNER.

Urology. By Edward L. Keyes, M.D., Ph.D., F. A. C. S., Professor of Urology, Cornell University Medical College; Urologist to St. Vincent's Hospital; Consulting Urologist to Bellevue and the Memorial Hospitals, etc. With one hundred and eighty-four illustrations in the text and twenty plates, two of which are in color. New York and London: D. Appleton and Company, 1928.

In the fifth edition Dr. Keyes has injected more of his personal self into the writing than in any of the previous editions. The book is well written, is complete, and would constitute the best book of this type. The book reads easily, is complete, yet at the same time, the writer has inserted enough wit to make every chapter interesting.

In the foot notes there are numerous references to little points gained only by his experience. In his chapter on urinary antiseptic, he does not discuss the drugs that are of doubtful value. Throughout the whole book he gives definite opinions. There is no doubt but that this edition of Dr. Keyes' Urology should be considered as the best text for students among the various books that have been published recently. His definite statements and the conservative treatment advocated, will give the general practitioner and the urologist more satisfaction than some larger volumes.

H. H. WEAR.

Regional Anesthesia. By Gaston Labat, M.D., Clinical Professor of Surgery, University and Bellevue Hospital Medical College, New York City, Laureate of the Faculty of Sciences, University of Montpellier; Laureate of the Faculty of Medicine, University of Paris; Formerly Special Lecturer on Regional Anesthesia; The Mayo Foundation, University of Minnesota. With a foreword by William J. Mayo, M.D. Second Edition, Revised. Octavo of 567 pages with 367 original illustrations. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $7.50.

The use of regional anesthesia has grown to great height, but it has not yet reached the proportions it deserves. It is in almost constant use by those whose specialties are narrow—dentists, laryngologists, ophthalmologists and urologists. General surgeons use it less frequently. The reason for this is not hidden. To use regional anesthesia successfully requires very precise knowledge of anatomy, particularly of nerve course and distribution. Such knowledge, as it appertains to the limited field of the specialist, is not too great to acquire and keep fresh. The chosen field of the general surgeon is the whole body. He may be pardoned for being daunted by the task of learning the location of every sensory nerve and the field from which it receives its impulses. This statement, however, magnifies the requirements of regional anesthesia which are great enough when reduced to their normal size.

It is always easier to do things in the old familiar way and so much may be said in favor of general anesthesia that one may always silence doubts which rise against it. But regional anesthesia will be used more and more by those whose minds are yet nimble and not tethered to any settled method. Such men will find ready help from this book by Labat. Its illustrations are abundant, clear, informing and even beautiful. They are of that high art without which no book on surgery can again find its way to a great number of readers. The descriptions are clear and concise. The author, born to the French tongue, is apt and even graceful with our own. If words and pictures are competent to convey the tchnic of regional anesthesia, Labat's book has accomplished its purpose. The chapter on Subarachnoid Block, commonly called "spinal anesthesia," is excellent and will, perhaps, be found more generally useful than any other. The method is in a period of remarkable renaissance.

C. S. ELDER.

The Nose, Throat and Ear. By John F. Barnhill, M.D., F. A. C. S., Professor Surgery of the Head and Neck, Indiana University School of Medicine; Formerly Professor Laryngology, Rhinology and Otology, Indiana University School of Medicine; Member of Indiana Academy of Science; American Otological Society; American Laryngological Association; American Academy of Ophthalmology and Oto-Laryngology; President of the American Laryngological, Rhinological and Otological Society. With 452 Illustrations, four of which are in color. New York and London: D. Appleton & Company, 1928.

In this volume of six hundred pages, the author has covered the three subjects with their allied fields in a manner that will appeal to "students and practitioners of medicine." No small part of the charm of the book is due to the well-known lucidity and facility of expression of Dr. Barnhill. Each division is preceded by a chapter on the essential points of anatomy of the parts discussed.

Accessory nasal sinuses are comprehensively dealt with and most of the modern ideas with reference to them are included. One misses any reference to Proetz's method of treatment, however. The numerous types of rhinitis formerly in vogue are noticeable by their absence, much to the credit of the good judgment of the author. As a well-known rhinologist is reported to have said, "Aside from neoplasms there are only two nasal diseases, viz.: deviated septum and sinus disease."

Laryngeal diseases are adequately treated as are pharyngeal disorders.

Ear diseases and their complications are concisely and ably discussed, including operations for simple and chronic mastoiditis, sinus thrombosis, ligation of the jugular and brain abscess.

Features worth emphasis are chapters on climate, headache and neuralgia, systemic diseases, focal pathology, tuberculosis, syphilis and on nasal and aural diseases in relation to life insurance.

On the whole the book impresses one with an abundance of descriptions of operations—rather more than the general practitioner will need and less detailed, naturally, than a phonograph would contain. An exception which, no doubt, will appeal to the student and practitioner, is the operation for tonsils and adenoids. Perhaps the author feels that they will do these operations anyway and they should be taught the correct principles. Such operations as laryngectomy, brain abscess, etc., might have had less space allotted to them.

There are some 450 illustrations, several in colors, a good index (which is far above rubies in worth in any book) and the press work is excellent.

F. L. DENNIS.

WYOMING MEDICINE

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EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

NEWS NOTES AND COMMENT

WANTED: CONSULTING ROENTGENOLOGISTS

Such an appeal should and does come from thousands of honest physicians, surgeons and men practicing special lines of medicine throughout the United States.

Many are afraid to speak out for fear of acknowledging their own short comings, but the truth is that we all need the services of such men. Scattered over states of the west and south, in particular, are regions where the population does not gather in large cities. Men highly trained in x-ray work cannot locate in small centers and make a living. It can't be done. However, there are scattered over these wide expanses a great many very good technicians and general physicians who can and do make most excellent pictures. But who is to read and interpret these splendid negatives? That's the question!

In most cities of say ten thousand people or less, there are several x-ray equipments and some of the operators are fairly efficient as interpreters, but deep down in their hearts they know that their knowledge is not exact and many times their opinions are wrong. That's the truth and we all know it.

It is true that in quite a large proportion of pictures taken the conditions are so evident, such as fractures, dislocations, etc., that the highest of expert skill is not always required in their reading, but many difficult cases are coming up all the time where expert skill is required in the proper reading of x-rays.

The American Registered Technicians' Association's rules do not permit technicians to attempt to read or interpret x-ray plates and it is not fair for doctors to ask for such reading by the technicians.

What is to be done? If the men who own and operate these machines cannot properly interpret the pictures how can the ordinary physician be expected to know anything about them? He cannot even spell much less read these puzzles. He is in the dark. He must have expert help and advice. We understand that the most expert roentgenologists desire all the aid that they can receive as to the physical findings, history, etc., before giving their opinions as to conditions shown by negatives. These are not unreasonable requirements but should be freely given in order that all possible evidence be considered in arriving at the conclusions which in many cases mean an operation or no operation.

What we common physicians need and are willing to pay for is not the picture alone but for someone to read and interpret the pictures that are taken all over this vast country of ours by people, who as honest doctors, refuse to read because of their lack of experience, but which must be read by someone who knows his "onions." We are all ready for such men and anxious to pay them a fair fee for their advice. It is not possible or is it a practical thing to try to move all or even a small part of our patients to the larger cities where these expert roentgenologists live and have their offices in order to have the pictures taken. Cases come up every day where a picture is desirable and yet it would be out of the question to try to get the patient to take a 500 or 1,000 mile trip to have an x-ray made.

That there is improvement in the class of pictures being taken all over the country is self-evident and the just and honest criticism of these experts when they examine and read these plates will in turn improve the quality of work being done all over the country. This in itself is a desirable condition to look forward to. Would it be possible for the roentgenological societies to furnish the physicians names of their members who will interpret our pictures. Stand up, gentlemen, and be counted. Who will do this work?

Be honest and there will follow a nice income to men so qualified and both the medical profession and the public will rise up and call you blessed. E. W.

"LET GEORGE DO IT"

That seems to be the reasoning of about one hundred doctors in Wyoming. They are so self-satisfied and contented to draw up in their shells of selfishness and ease and let the burden of the carrying of a state medical society fall upon the shoulders of a few.

But is it fair?

Do we not all owe to each other a certain degree of co-operation? Take the question of Medical Defense.

There has been started a suit in the state for $50,000.00 damages against two of the best doctors of the state. They are men whom we know are highly trained, honest and competent in every way to properly diagnose and treat the patients that come to them. And yet here they are with a large damage suit to defend.

Every physician has such a threatened situation staring him in the face every hour of his life. His property and what is many times more valuable, his reputation, may be attacked at any time by anyone who has the funds to pay for the filing of a suit and the desire of some shyster lawyer as an aid. Anyone who has the price can bring a suit. But where does our duty come in as fellow physicians?

Simply to see that the accused be given a fair, honest trial and that all the evidence be presented in a clear, honest way. If such conditions are met we will have no fear of the outcome. Justice will prevail, but our united efforts are needed to assist in the defense of all members who are guiltless of malpractice and on the other hand to refuse to defend those who are guilty of lack of skill or knowledge possessed by the majority of the doctors practicing in the state of Wyoming, or who wilfully neglect or mistreat their patients.

To this last class we would in no way aid in their defense, but let them pay the price of their misdeeds.

To the honest, qualified and painstaking member of the profession we extend our sympathy and aid to the highest court of our state. If these are our clear aims as a society, why should any doctor in Wyoming refuse to join the State Society?

Join now, don't wait! E. W.

HYPOTHYROIDISM*

J. C. KAMP, M.D.
CASPER, WYOMING

Since the introduction of the Metabolometer for diagnostic purposes, certain phases of the behavior of the thyroid gland have come to notice, which may prove interesting in clearing up some of our old chronic cases. It is very interesting to note the interest this condition has created. Englebach in a recent series of lectures spoke about the very common occurrence of this condition and how often it is overlooked.

In this mountainous country we have one of the so-called goiter belts. Here we are constantly on the look out for goiters. Patients who come to us complaining of an enlargement in the neck or with obscure nervous phenomena are immediately suspected.

Commencing last March this office made it a point to do routine metabolic rates on all patients where the diagnosis was obscure. It was surprising the number of patients we found having a low rate, that is one be-

*Delivered before the Natrona County Medical Society, September, 1928.

low minms 10. The findings will be given here.

Within the past year a great deal has been written on the subject of cardiac exhaustion and its consequent train of symptoms; some work has been done on the exhaustive states of other endocrine glands, but very little research work has been given us, on what might be termed here as thyroid exhaustion.

It is not necessary to go into the history, anatomy, physiology or pathology of the thyroid. Any good text book covers these fields adequately. In passing let us do credit to the men who have done the pioneer work on the thyroid gland in this country; Plummer and Kendall for the discovery of thyroxin and its relation to thyroid function; Marine, Kimball, Crile, Leahy, Warthin and numerous others who have supplied to the world the results of their research work on this gland.

It is not the purpose of this paper to discuss classic myxedema, which is very rare; but that condition of lowered activity of the gland sometimes termed "larval myxedema" or "potential myxedema." It is my opinion that the term myxedema should not be associated with this condition at all, but should be defined as simple hypothyroidism, as it has, as in the hyperthyroidism variety, to do almost entirely with the metabolism of the thyroid gland.

The word metabolism is used advisedly in this connection because it has to do with both constructive and destructive activity of the body, both of which are slowed in this condition. The term "basal metabolic rate" may be defined as the rate of energy transformation taking place under basal conditions, when the body has been at muscular rest in the horizontal position for half-hour and at digestive rest for twelve hours of fasting. This rate is largely under control of the thyroid gland. Depending on the thyroxin content of the tissues, the basal metabolism may range from about 50 per cent below to that of 125 per cent above the average amount. Realizing how easy it is to disturb the function of the thyroid one should have a full knowledge of the amount of thyroxin in the body and the amount the gland gives for this work.

"The present conception of thyroid function is that its action is exerted through a secretion, thyroxin, which acts as a hormone. The hormone may be compound, with special affinities and activities. At present we can recognize only effects on many organs and tissues, some stimulating, some inhibiting, but we do not know for certain whether the hormone action is direct or exerted through the nervous system." "The gland also stores colloid in the lumen of its vesicles. It seems highly probable that the latter function is accessory to the production and storage of thyroxin as well as the storage of iodine for the elaboration of the active agent" (Plummer). The work of Kendall, Plummer and Boothby indicates that thyroxin is used directly in the processes of oxidation as a catalytic agent, that probably all the cells of the body respond to its excitation, so that it hastens the rate of formation of a quantum of potential energy available for transformation. The thyroid, unlike the adrenals, is probably not called on suddenly to meet a demand for its product, it probably does not respond to emergency metabolic stresses, but is more or less continuously discharging its secretion and elaborating and storing its product.

"The human body contains approximately 14 mg. of thyroxin. In the normal person the amount varies within relatively narrow limits. An elevation or depression of approximately 1 mg. in the thyroxin content of the organism causes a corresponding shift of 2.8 per cent in the basal metabolism. If 14 mg. of thyroxin is introduced intravenously into a thyroidless individual, it is not completely exhausted in from six to eight weeks or possibly longer. The daily intravenous dose of thyroxin required to hold the basal metabolism of a thyroidless individual at normal and hence the daily discharge of this agent from the thyroid is approximately 0.75 mg." (Plummer.)

Instead of the newer tests of metabolism, it might be interesting to mention some of the older tests. I do not believe they are used very much now as they are very prone to error and should be used with extreme care. The two Goetsch's tests depend on the use of adrenalin intradermally and the

result on the vasodilators with its consequent effect on blanching of the skin, the so-called "goose flesh" result and the change in the blood pressure with the pulse variation; and the test of Loewi who used adrenlin in the eye and its effect on the pupil.

Definition: Simple hypothyroidism might be defined as a constitutional disorder due to a deficient functional activity of thyroid and parathyroid glands and the resultant slowing of the metabolism in all the tissues.

Forms: As in most of the endocrines, two forms should be recognized. That of the hereditary and acquired types. The acquired form usually results after such diseases as measles, mumps, diphtheria, scarlet fever, infections of the mouth, tonsils, pharynx, accessory sinuses, nose and cervical glands which by thyroid drainage or by continuity of the infection creates a thyroiditis which when it improves, leaves a lessened amount of normal thyroid tissue that cannot do the work the body requires of it. Also in the long standing febrile conditions, the thyroid becomes exhausted because of the required work. A child may then grow in the normal way until some acute infection deprives it of more or less of its thyroxin, it fails to recover properly and then shows the various symptoms of hypothyroidism. This same condition is sometimes seen where there have been repeated and frequent pregnancies. In the hereditary type the thyroid, in association with other glands, transmit the discracias of gout, syphilis, and alcoholism and they of course have their effect on metabolism.

Symptoms: Perhaps one of the most common symptoms these patients complain of is that of rheumatic pains in the dorsal region of the back, present in the morning on awakening and disappearing during the day after the patient gets up and about; disturbance of nutrition of the hair, exhaustion, sick headaches, billiousness, cold, clammy hands and feet, susceptibility to infection, cold, slow pulse, low blood pressure, subnormal temperature, anaemia, digestive disturbances and changes in the menstrual cycle. How often have we met with the patient, distinctly neurotic, who tells you that on Friday of this week she will have one of her sick headaches which will only be relieved with a hypodermic and leaves her in an exhausted condition for two or three days after. These are some of the common expressions of hypothyroidism.

Prognosis: Unless of course the condition has progressed so long that pathologic changes have occurred in the other organs the prognosis is good, but of course they must be kept under observation and treatment.

Treatment: The only treatment is the use of either thyroxin or dessicated thyroid. The size of the dose depends upon the severity of the condition. In the majority of our cases the initial dose is 1/160 of a grain of thyroxin twice a day, or two grains of dessicated thyroid three times a day. The latter is used usually with some general tonic such as Reduced Iron, Extr. Nux Vomica, etc. The use of all thyroid extracts must be watched carefully that they do not pile up their results and give a sudden hyper effect. This may be done by making frequent metabolic rate tests. The removal of all focal infection and the establishing of general hygienic care is, of course, essential to re-establish the normal function of the gland.

CASE REPORTS

Case 1: Mr. E. Age 40, ht. 72", wt. 118 lbs. B. P. 86/64, pulse 54, temp. 96.6. Tires very easily metabolic rate —22. Thyroxin treatment instituted and has done very well. I heard from this man about six months ago and he is still taking his thyroxin and doing very well. It is necessary for him to continue his treatment or he slides back to his old state. I believe the origin of his condition was malaria he contracted in South America.

Case 2: H. P. F. Age 45, wt. 150 lbs., pulse 60, B. P. 90/60, temp. 96.2. Could not accommodate himself to any position, nervous and tired all the time. Metabolic rate —15. Thyroxin treatment showed very much improvement. Is still under treatment and is very much better.

Case 3: Mrs. H. Age 65, married, no children. Pulse 62, B. P. 96/72, temp. 98. During the past ten years has been operated for chronic cholecystitis, the gall bladder was removed. The appendix and one ovary were removed later. After all this surgery she still continued to feel the same way, tired, nervous, billious attacks with severe headaches. The metabolism rate was —30. She is under treatment now with thyroxin, and is doing very well.

Case 4: Mr. C. Age 49, ht. 64", wt. 112 lbs., temp. 98, pulse 68, B. P. 90/64. Nervous, tired, exhausted, frequent attacks of indigestion and very depressed. Metabolic rate —14. Is under treatment now with thyroxin. Very slight improvement. Do not believe he keeps up treatment.

Case 5: Miss L. Age 24, ht. 67", wt. 109 lbs.,

temp. 97.8, pulse 70 B. P. 94/68. Has not been well for years. Was operated for ovarian cyst three years ago. Was feeling better for a month after operation which was probably due to rest. Is very depressed as a rule and cries when you speak to her, too tired to work and cannot become interested in any occupation. No appetite. Metabolic rate —20. Is doing very well under thyroxin regime and feels that her troubles are solved and that she will get well.

Case 6: M. P. Age 20, ht. 65", wt. 96 lbs., temp. 98, pulse 65, B. P. 88/70. Comes because of pain over the thyroid, nervous exhaustion, tires very easily. Metabolic rate —28. The use of thyroxin has given him considerable relief. He is still taking his medicine and doing the normal things a boy of his age should do. At this writing his weight has increased to 136 lbs.

Case 7: Mrs. W. Age 43, ht. 62", wt. 143 lbs., pulse 76, temp. 97.8, B. P. 94/70. A neurotic, never well, achlorhydria, nervous, has headaches, backaches, her hands and feet swell in the A. M. Her menses ceased about five years ago. Her metabolism rate is —18. She is on Hcl and thyroxin. The results are slow, we expect them to be as it will be hard to convince her that she will improve.

Case 8: Mr. R. Age 36, ht. 65", wt. 117 lbs., temp. 98, pulse 66, B. P. 78/60, very low. A traveling salesman who has been feeling ill for the past year suffering from nervousness, pains in the dorsal region of the back (which improves during the day), exhaustion, digestive disturbances, irritability, constipation and frightened because a diagnosis of tubercular spine and intestines was made on him. Thorough examination revealed nothing except the metabolic rate of —16. He was given tonic treatment with 2 grains whole thyroid and he has improved very much. No evidence of T. B., either by clinical or laboratory tests, was found.

Case 9: Mrs. B. Age 33, ht. 65", wt. 96 lbs., pulse 76, temp. 97, B. P. 88/68. Has had the so-called sick headaches for over three years, increasing in severity. Chilliness, exhaustion and nervousness. Her metabolism rate was —21. She has been taking thyroxin for four weeks now, feels very much better and has had no recurrence of her headaches.

Case 10: Mrs. T. A. Nurse. Age 25, ht. 64", wt. 140 lbs., temp. 98, pulse 78, B. P. 94/66. Was sent to this office because it was believed that she had a goiter. She was suffering from nervousness, digestive disturbances, cold and clammy hands and feet and became very easily exhausted. her metabolic rate was —14. She was advised to take whole gland extract and tonic treatment with rest. To this date she reports that she is well and has had no recurrence of her sypmtoms.

Case 11: Mrs. M. Age 47, ht. 66", wt. 135 lbs., pulse 64, temp. 97, B. P. 92/68. This is perhaps the most interesting case of all. At the age of 9, she started to have the so-called sick headaches with nausea. She has been operated on three times for various conditions of the abdomen. During the past year these headaches were coming at regular intervals of every week, so that she would be recovering from one until she would be taken with another. The operations she had, have given her no relief. She was thoroughly examined, but nothing was found to justify for the condition except the very low metabolic rate of —22. This was in June of this year. She was placed on thyroxin and has done remarkably well, the headaches have left entirely, she is able to do her own housework, is able to drive a car even through the heaviest of traffic in a city as large as Cleveland and all in all we feel very proud of this result.

Case 12: Mrs. F. Age 43, ht. 67," wt. 130 lbs., pulse 68, temp. 97, has had her sick headaches for a period of years. She has tried dieting even to the latest "elimination diet" without result. Her old treatment was calomel, but even that has failed her. It was suggested that it might be a low thyroid. Her metabolism rate taken was —28. She has had two experiences in her own family of hyperthyroidism, so that the advent of a case of the hypo variety makes the family picture quite interesting and complete. She was placed on thyroxin and one should not predict the outcome of the result too soon. She is a great deal better and feels that her problem has been solved.

Case 13: Mrs. J. T. S. Age 45, ht. 61", wt. 88 lbs, pulse 58, temp. 96, has been practically an invalid for the past fifteen years. Recurrent attacks of neuralgia, gall bladder disturbances, digestive disturbances, nervousness with exhaustion, chronic constipation. She has been operated on twice for different abdominal conditions and is still in the same condition regarding her abdominal symptoms as before. Her metabolism rate was —28. She has been placed on a tonic capsule containing reduced iron, grs. 1½, Extr. Nux Vomica, grs. ¼, Extr. Rhamnus Purshianna, grs. 2 and dessicated thyroid grs. 2. She is making a steady improvement and we hope for a real good result.

Case 14: J. W. B. Age 36. Operated elsewhere in January of this year for exopthalmic goiter. About two months after operation, from which he made an uneventful recovery, he suddenly began to gain weight, became very exhausted and suffered with vertigo. His metabolism rate at this time was so low that it could not be estimated with the methods in use. He was put on thyroxin and he cleared at once and now that portion of the thyroid which was left at operation is evidently functioning normally. this case is mentioned just to show how quickly sometimes these conditions can come about and that we must ever be on the alert to stop them before damage can be done. This case does not truly come under one of hypothyroidism, but your attention is called to the necessity of metabolism tests to watch those that have been operated.

Case 15: Mr. S. Age 38, was seen by us about two years ago because of a swelling in front of his neck. This swelling was about the size of a medium size apple and was getting so that he could not use a collar or anything tight about his neck. I believed the condition to be one of a simple cyst. It was removed under ether and shelled out very readily. He made an uneventful recovery, but low and behold about six months afterward, he came back complaining of weakness in the arms and legs, exhaustion and nervousness. The scar showed nothing, he had a slow pulse, low blood pressure, and subnormal temperature. His metabolism rate was —27. He was put on thyroxin and made an uneventful recovery. The "cyst" must have been an adenoma of the isthmus and its removal gave him the typical signs of hypothyroidism. This proves, too, that operations on the thyroid should be done with extreme care and the cases carefully followed up to watch for sudden changes in the metabolism rate for the control of hypothyroidism.

I wish to again refer to the articles in the very early part of this paper. The first one, that by Dr. A. S. Blumgarten, written in the November number of the "Medical Clinics of North America," and the very interesting article on hypothyroidism, written by Dr. Louis M. Warfield, published

in the November number of the "Annals of Internal Medicine." The article by Dr. Warfield coincides very much with our findings and the results so far obtained.

NEWS ITEMS

Dr J. D. Lewellen of Cody recently suffered from an attack of influenza but is able to be at his work again.

Dr. Louis Howe of Cody is confined to his home by a case of sinusitis as a complication of influenza.

Three children out of a family of four near Cody recently died of scarlet fever. The next meeting of the Northwestern Wyoming Medical Society will be held in Powell. One of the important subjects this Society will consider is a definite co-operative plan of exchange of information on financial status of those on the books of the various physicians, with particular listing of poor pay and dead beats. A portion of the Big Horn Basin is already organized and operating on a cash basis, in the serving of the dead-beat element of its locality. With the changing times, all other business is tending more toward the cash plan, and if physicians are to save themselves financially, some such plan must be adopted.

SHERIDAN COUNTY

The following officers were elected by the Sheridan County Medical Society for 1929, all of Sheridan:

President—Dr. S. W. Johnson.
Vice President—Dr. C. E. Stevenson.
Secretary-Treasurer—Dr. Earl Whedon.
Censor, 3-year term—Dr. E. G. Denison.

Dr. T. E. Marshall, one of the old pioneer physicians of Sheridan, is now in California in the hopes of regaining his health. The genial doctor has the best wishes of his associates for a speedy recovery.

Dr. W. H. Roberts is acting health officer of Sheridan county during Dr. Marshall's absence.

The staff of the Sheridan County Memorial Hospital held a very interesting meeting the evening of January 8th. These meetings are becoming more and more helpful and are largely attended.

Dr. Fred Horton of Newcastle, one of the pioneer doctors in northern Wyoming, is attending the Wyoming State Legislature as a member of the House of Representatives from Weston county where he will find plenty of matters demanding his attention and good judgment.

Dr. J. G. Wanner, Mrs. Wanner and two sons, expect to return to Green River January 15th. They have been in New York and Chicago where the doctor has been doing post-graduate work for the past three months.

PLATTE COUNTY

The following officers were elected by the County Medical Society for 1929:
President—Dr. F. G. Huffman.
Vice President—Dr. E. R. Smith.
Secretary-Treasurer—Dr. C. E. Fish.
All of Wheatland, Wyoming.

NATRONA COUNTY

The following officers were elected by the Natrona County Medical Society for 1929, all of Casper, Wyoming:
President—Dr. C. M. Keith.
Vice President—Dr. W. W. Yates.
Censor—Dr. T. J. Riach.
Secretary-Treasurer—Dr. Lawrence McLellan.
Delegates to State Meeting—Drs. J. C. Kamp, N. H. Einhorn and H. L. Harvey.
Alternate Delegates—Drs. Allen McLellan, M. J. Nolan and William McDermott.

ALBANY COUNTY, LARAMIE, WY.

No officers elected for 1929. No news.

Influenza

The influenza situation is the most important item in the health record of the closing months of 1928. In the first four weeks of November, reports from twenty-one state showed 20,165 cases as compared with 5,414 in the corresponding weeks of October. As this is written, reports are available from twenty-six states for the first two weeks of December. In these states, 53,682 cases were reported as compared with 7,887 in the first two weeks of November. Press dispatches, published December 28th, stated that the Public Health Service estimated that there were at least 1,250,000 cases in the whole country.

The above facts relatng to the wide and increasing prevalence of influenza are taken from the reports made to the United States Public Health Service by state health officers. An unusual amount of sickness was first observed in California, late in October, and during November and December the disease spread to other sections of the country. It is recognized that even in states where influenza is a "reportable" disease, many cases are not reported, and it is now assured that in other states there prevail at this time extensive epidemics of mild influenza. The reports, by and large, indicate that the type of influenza now prevailing is not that which runs quickly into pneumonia and causes death.

The present outbreak, nevertheless, is showing very clearly that general prevalence of even a relatively mild type of this disease is a serious matter in its effect on the deathrate. During the first three weeks of December death claims paid in the Industrial Department of the Metropolitan Life Insurance Company's Home Office (for all causes combined) rose sharply from a total of 5,179 for the week ended December 1st, to 6,429 for that ended December 22d. In seven Western states (California, Oregon, Washington, Utah, Idaho, Montana and Colorado) deaths from influenza and pneumonia increased five-fold between November 12th and December 15th; the rise being continous from week to week. The present outbreak, and former ones, have shown conclusively that even a relatively mild type of influenza hastens the deaths of thousands of persons who suffer from chronic diseases. In consequence, this extensive epidemic of mild influenza means that we are confronted with a public health problem of the first magnitude.

Sir William Osler Said:

"There is no greater mistake than to keep from the patient the knowledge that he has tuberculosis in its early stages, as it is only by having that knowledge that he can be expected to recover. We are criminal participants if we refuse to tell the patient exactly the nature of the trouble."

Colorado Medicine

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EDITORIAL NOTES AND COMMENT

THE WARD BURDICK METAL

No comment of ours can add to the abiding respect the physicians of this state continue to have for the late Dr. Ward Burdick. The following announcement and cuts of medal speak for themselves:



"The American Society of Clinical Pathologists has announced an annual award to be given to the best work in clinical pathology by one of its members. The prize will be known as the Ward Burdick Research Award of the American Society of Clinical Pathologists and is intended to perpetuate



The prize will be in the form of a gold medal bestowed for some outstanding research project in any of the fields of clinical pathology. It will carry the profile likeness of Dr. Ward Burdick and the nature of the award on its face, while on the reverse side will be the seal of the Society, the name of the recipient and the date of presentation.

the memory of the deceased secretary and co-founder of this organization, who carried the Society to a successful status and useful functioning in the medical field.

The award is to be made to the successful candidate by the president of the Society at the annual convention on the evening of the banquet.

All candidates for the award must present their thesis at least two months prior to the annual meeting to be held in Portland, Ore., July 5, 6 and 8, 1929, in order that it may receive the careful judgment of the Research Committee. Correspondence should be addressed to the American Society of Clinical Pathologists, Metropolitan Building, Denver, Colo."

THE STATUS OF LEGISLATION

The General Assembly is being called upon to pass certain laws pertaining to medical practice and public health. The nature of the most important of these proposed measures was set forth in a previous number of the Journal. The status of such legislation is now as follows:

House Bill No. 420, pertaining to the competency of witnesses and privileged conversation, has passed the House and there is no reason to doubt that it will pass the Senate without opposition.

House Bill No. 42 provides for the annual registration of all who practice the healing art within the state. The bill has been temporarily retired to the Committee on Medical Affairs because some of the legislators favored a tax of ten dollars for purposes of revenue. The proponents of the measure preferred to retire the bill rather than to submit the profession to such unjust class taxation. The bill as originally proposed provided for an annual fee of five dollars for purpose of administering the law. The sister bill for annual registration of dentists proposes two dollars as an adequate fee. States, where annual registration of physicians is required, provide for fees as follows: California, reduced from two dollars to one dollar; Connecticut, two dollars; Florida, one dollar; Minnesota, five dollars reduced to two dollars; Nebraska, one dollar; Oregon, five dollars.

House Bill No. 19, providing for a separate board for licensing chiropractors, is still in committee. This, in our judgment, is a particularly nefarious bill by which untrained men are driving a wedge to admit them to the practice of general medicine.

Senate Bill No. 79 provides that medical prophylaxis in schools be made optional with parents when the objection is made in writing. The bill has been referred out of the Committee on Education in the Senate, but with an amendment clearly stating that the measure does not prevent the exclusion of pupils harboring any contagious disease. While the teeth of the bill have been extracted, it still provides a chance for a deal of heinous gumming. Aside from the necessary load of clerical work it will create for school administration, it will slowly create a group of individuals unprotected against smallpox. This is a recognized social hazard which the communities of the state have no right to be asked to assume.

House Bill No. 561 proposes to make the state law conform with the national law regulating the control of alcoholics for sacramental and medical purposes. The bill is still in committee. No official support has been given this measure from our Society, though there is recognized merit in such a modification. Whether wisely or not, individuals have acted within their rights in supporting it and candidates pledged to its passage, but as an organization we are still neutral and therefore deny the charge of playing politics with prohibition enforcement.

The bills promoted by dentists and druggists certainly deserve our support.

Special attention is called to the faithful efforts of Senator Alfred M. Lininger, D.D.S., and Representative E. J. Brady, M.D., chairman of the Medical Affairs Committees of the Senate and House. It is deplorable that only three county societies and very few individual physicians have informed these gentlemen of their stand on the above measures. They are exceedingly anxious to deal justly with their professional constituents, but how can they always do this if we continue silent and indifferent?

Better than informing these gentlemen who are our loyal friends, we should write other members of the Legislature to whom approach would be natural and personal influence effective. Certainly there are few physicians in Colorado who do not have friends in our present Assembly. Such men should be written at once as the above measures will be acted upon within the next thirty days.

Note: House Bill Number 19 has just been tabled. Senate Bill Number 79 has just passed the Senate. It will probably be referred to the Committee on Education in the House. This committee consists of J. P. Jackson, Colorado Springs, Chairman; George W. Johnson, Longmont; F. A. Temple, Wiley; P. H. Handwerk, Edgewater; F. P. Woolston, Dover; Helen B. Noland, Durango; Hattie A. Mead, Pueblo; D. E. Hunter, Manzanola; C. F. Rumbaugh, Pagosa Springs.

THE DIAGNOSIS OF TRACHEOBRONCHIAL TUBERCULOSIS IN CHILDHOOD*

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It is now well recognized that both the clinical and physical picture of tuberculosis in childhood differs greatly from the adult type. In children, the disease affects principally the glandular and osseous system. The classic work of Gohn[1] has shown that in the majority of instances tubercle bacilli of the human type are inhaled and find lodgement first in the periphery of the lung, where they give rise to the well known local reaction, resulting in the development of a lesion varying in size from a pinhead to a pea. Occasionally it attains the size of a hazelnut. This constitutes the primary lung focus. The primary infection may become localized in the tonsil, or, in case of bovine bacilli, in the intestine, but the most common location is in the lung. From the primary focus the invading organism may spread by means of direct extension, through the lymphatic or blood streams, or through the air passages. The first extension in childhood, however, is almost always by way of the lymphatic channels to the nearest lymph nodes which surround the trachea and bronchi. This secondary process may develop into caseation and become a source of further dissemination through the various routes as mentioned above, or it may undergo gradual fibrosis and calcification. When the latter occurs—and this is fortunately the usual termination of the greater number of such infections—the disease is said to have become quiescent or latent. That such dormant foci constitute potential danger is beyond dispute, since Opie[2] has demonstrated that many of these apparently innocuous calcareus or fibrous lymph nodes contain living tubercle bacilli, and clinically it has been observed that an active tuberculous process often follows in the wake of acute infections, notably those affecting the respiratory tract. There is, therefore, sufficient reason to believe that the greater number of new crops of manifest tuberculosis in young adults is recruited from individuals who had become heavily infected during childhood. These new cases, in turn, are the most prolific source of latent disease in the growing generation. It is this vicious circle that constitutes the major tuberculosis problem of today.

Prior to the advent of the x-ray and tuberculin skin tests, the earliest manifestations of tuberculosis in childhood were not recognized. The secondary or lymphatic stage was detected only when the superficial glands became involved. Diagnosis and treatment was then confined to the third stage, the stage of invasion. The utilization of these modern diagnostic methods has enabled the present-day clinician to make a reasonably early diagnosis. This is the most hopeful aspect of the problem, for it has been shown that when the disease is recognized early it can, under appropriate treatment, be confined to the lymph glands, its progress stemmed and eventually a practical cure accomplished.

During the past eight years the National Jewish Hospital has endeavored to reduce the incidence of future adult tuberculosis by admitting children between the ages of 5 and 15 years who have been intimately exposed to tuberculosis and whose general health is below normal. Persistent underweight of 7 per cent or more, frequent upper respiratory infections, digestive disturbances, irritability or fatigue are considered significant symptoms. The standard remedial measures employed are rest, fresh air, nutritious and properly balanced diets, heliotherapy and air baths, supervised activities, instruction in an airy school room, and the eradication of focal disease. In February, 1928, a clinical survey was made of 300 preventorium children whose average age was a little over 9 years, and whose average resi-

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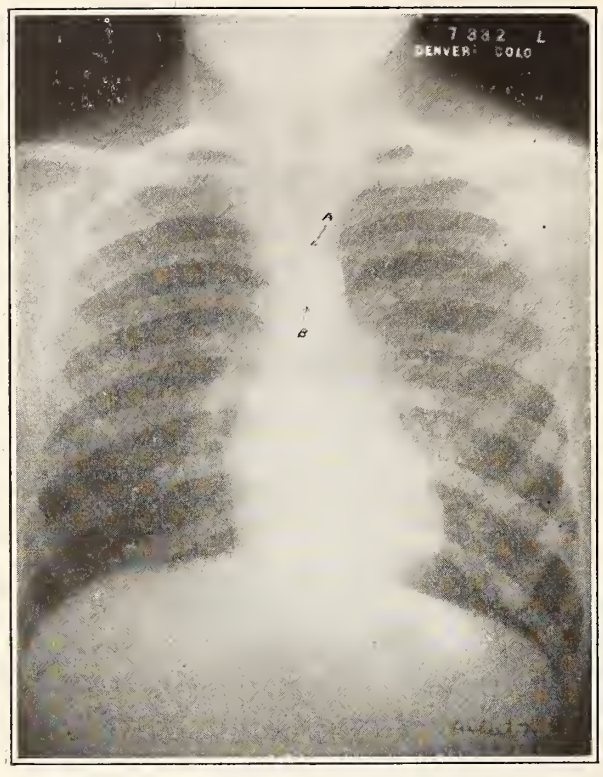


Figure 1

H. L. Roentgenographic appearance of normal chest of boy 9 years old. No history of exposure, though intracutaneous tuberculin reaction was positive. Note appearance of normal hila and the air-bearing tissues medial to the densities cast by the blood-vessels and pleural reflections. Shadow AB is a lead marker placed on patient's chest for proper focusing.

dence in the institution had been close to ten months. The data compiled proved of sufficient interest to warrant a detailed report to appear elsewhere.[3] Our present aim is to analyze a group of children on whom a roentgen-ray diagnosis of tracheobronchial tuberculosis was made.

In this group is not included all the 195 cases of the total series, or 65 per cent, which showed some calcification at the root of the lung. While calcification, as far as is known, represents indisputable evidence of a tuberculous infection, it per se does not have much clinical significance in children over five years. The term tracheobronchial tuberculosis was, therefore, arbitrarily applied only to those cases which showed on the roentgen-ray film distinct para-tracheal or para-bronchial calcium-bearing lymph nodes with or without associated enlarged hilum shadows. It was believed that when extra pulmonary lymph nodes have attained such proportions as to be recognizable on the film in the postero-anterior position, there should be some definite physical signs and characteristic symptoms.

Of the 300 roentgen films studied, 66 or 22 per cent were considered as representative of unmistaken tracheobronchial tuberculosis. Table I shows the relation of exposure to infection and disease:

TABLE I

Factor of Exposure in the Causation of Tracheobronchial Tuberculosis

	No.	Per Cent
Definite exposure	54	81.8%
Probable exposure	9	13.6%
Negative exposure	3	4.6%

A glance at this table shows that in over 80 per cent the source of the infection could be easily ascertained. If the object of diagnosis is to be a basis for treatment, it is necessary to find the infecting source. The prevention of massive infection is obviously as rational a treatment as any other prophylactic measure which may be subsequently instituted.



Figure 2

G. D. Girl 8 years old with a history of intimate exposure to a tuberculous brother. Note primary focus, so-called Gohn tubercle AB; dense right hilum, and beginning infraclavicular infiltration CED. Pronounced cervical adenitis and abdominal pains suggesting possibility of tabes mesenterica.

TABLE II

Symptomatology in 66 Cases of Tracheobronchial Tuberculosis

	No.	Per Cent
Fatigue	30	or 45.4%
Irritability	40	or 60.4%
Fever	36	or 54.5%
Digestive disturbances	28	or 42.4%
Cough	8	or 12.1%

An analysis of this table shows that over 60 per cent manifested sometime during their residence one or more of the five principal symptoms commonly associated with this disease. Diurnal variations in temperature of 1.5° F. were not considered abnormal in the absence of other symptoms. Only those who during a given month had three or more elevations in temperature to 100° F. or over, were classified as fever cases, after focal infection was excluded with reasonable certainty. Such symptoms as fatigue, irritability and even fever were frequently overlooked if not watched for by a competent nurse or teacher. While the classic combination of listlessness, capriciousness, digestive disturbances, lack of endurance and inability to concentrate were often associated with fever, thus completing the classic picture, there were many whose complaints were so vague as to arouse a suspicion of malingering or so-called neurosis. Those with poor or capricious appetites were especially subject to the designation of cranks or neurotics by the inexperienced attendants. Further observation lead to the conviction that, with few exceptions, a child rarely complained without cause. On the contrary, many children had to be restrained from physical activity at a time when they had a temperature of 100° F. or over.

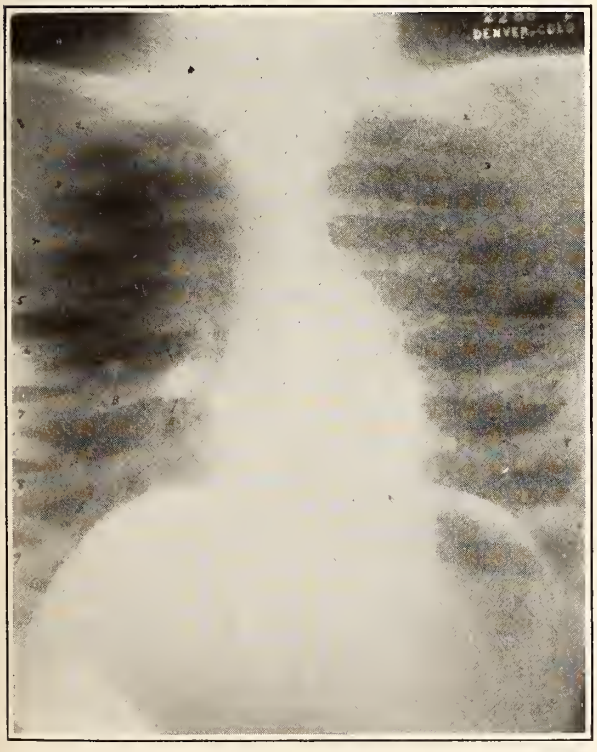


Figure 3

B. Y. Boy, age 10. Intimate exposure; 15 per cent underweight. Bronchial asthma. Note primary focus AB and calcium-bearing lymph nodes CD. Clinical improvement and final disappearance of asthmatic attacks following prolonged heliotherapy and general care.



Figure 4

J. L. Girl, age 7. No history of exposure; 7 per cent underweight. Note calcium-bearing lymph nodes AB and primary focus CD. Enlarged lymph nodes near the large vessels at the base of the heart are often responsible for cardiac murmurs.

Attention should be called to the symptomless group, whose roentgen-ray plates resembled in essential details the plates of those who presented active symptoms. Those who had no subjective symptoms suffered only from varying degrees of persistent undernutrition; otherwise they seemed in perfect health. A differentiation must, therefore, be made between active and inactive tracheobronchial tuberculosis as is made between active and inactive pulmonary tuberculosis. This does not, however, imply that

children with inactive disease are not in need of radical prophylactic measures and continued observation.

Not unlike the experience of other observers, our experience with physical signs was disappointing, for the classic signs, commonly quoted in text books, were relatively infrequent.

TABLE III

Physical Signs in a Group of 66 Children With Definite Roentgen-Ray Manifestations of Tracheobronchial Tuberculosis

	No.	Cent Per
Underweight	62	or 93.9%
Cervical adenitis	35	or 53.3%
D'Espine Sign	12	or 18.1%
Interscapular dullness	10	or 16.7%
Dilated veins over chest and abdomen	12	or 18.1%
Bronchial asthma?	4	or 6.6%
Valvular heart disease?	8	or 12-1%
Tuberculin reaction positive (only 40 cases tested)	40	or 100%

The above table does not list all the abnormal physical findings which are irrelevant to the clinical entity under consideration. Questionable bronchial asthma and valvular heart lesions are included for the reason that later study suggested the possibility that the intrathoracic lymph node enlargements were in part, at least, responsible for the symptoms and physical signs.



Figure 5

L. C. Mexican boy, 9 years old. Note wide mediastinal shadow encroaching on right apex AB. Chest findings essentially negative. Patient has now costo-sternal abscess from which tubercle bacilli have been isolated, and beginning right hip disease.

It will be noted that underweight of 7 per cent or more was present in nearly 94 per cent. While it is recognized that underweight may be due to social and economic causes and need not necessarily be associated with tuberculosis, it is believed by many that persistent underweight under a favorable environment and after diseased foci had been eradicated, should arouse suspicion of a possible tuberculous focus as the underlying cause. Chadwick[4] studied the question of malnutrition as an etiologic factor in tuberculosis by making physical examinations of under-nourished children in the schools. He found in 53 per cent of 186 malnourished children evidence of lymph node tuberculosis. Wolff[5] examined several hundred underweight children of school age and found in 60 per cent evidence of tuberculosis. Whether malnutrition paves the way for implantation and growth of the tubercle bacillus is still a subject of controversy, but there is no doubt that tuberculous infection is responsible in many cases for persistent malnutrition.

Cervical adenitis was present in over 53 per cent. This is in accord with the findings of Lawson[6] and others. Since other causes for cervical adenopathy, such as infected tonsils, or diseased teeth and sinuses appearance of recent films, despite the clinical improvement.

were routinely looked for and remedied, it must be assumed that these lymph nodes were tuberculous, although a more positive proof could have been obtained by a roentgen-ray demonstration of calcification, as has been pointed out by Dunham and Smythe.[7]

The d'Espine Sign and interscapular or paravertebral dullness were elicited in relatively few of these cases as compared with those on whom such findings were recorded and whose roentgen-ray plates showed no evidence of lymph node enlargement. The frequency of a positive d'Espine in normal

children has been pointed out by a group of investigators[8] who made a special study of the normal chest in children. It is difficult to find a basis for changes in percussion, since massive tuberculous lymph node enlargement is rare in children over three years[9]. In our series, even the most striking cases did not show protrusion of the lymph node much beyond the spinal margin. Wide mediastinal shadows were rare. If interscapular dullness is attributed to changes in the muscle tone as a result of a reflex effect from a caseating lymph node, it is easy to understand why this finding is so infrequent, since the pathological process in the average case is limited by the gland capsule, and it is only in rare instances that it extends beyond that membrane. There must have been, however, some interference with the circulation in a few of these cases, since in twelve children the veins over the thorax and abdomen were unduly prominent. This sign is not stressed by most modern authors. When present, it should call for a careful chest investigation.

The four children with symptoms simulating bronchial asthma proved of interest. Three had a definite history of exposure. For two years prior to admission they had been subject to typical asthmatic attacks at intervals of two weeks to three months, preceded by a rise in temperature of 99.5 to 101° F., lasting four to five days. In the intervals, they seemed to enjoy fair health. Infectious foci were eradicated, and cutaneous food tests did not show any hypersensitiveness. These children were observed at the hospital during several attacks. As the roentgen-ray plates showed thoracic lymph node enlargements, complete immobilization was instituted. During the first six months of absolute bed rest, the paroxysms decreased in frequency and severity, coincident with a decrease in fever preceding the attacks. Under continued treatment, including heliotherapy, the asthmatic and febrile manifestations finally disappeared. Two children were traced two years after discharge, during which time there was no recurrence of symptoms, although the comparative roentgen-ray plates showed no noticeable decrease in the lymph nodes. It is believed that in these cases there probably existed an anaphylaxis to the toxin or protein of the tubercle bacillus. This belief could have been verified if tuberculin had been employed and an asthmatic paroxysm provoked. The fourth case apparently had true bronchial asthma, for the symptoms persisted long after the disappearance of the febrile manifestations.

Eight cases were recorded as having valvular heart disease, based upon murmurs at the mitral area and at the base of the heart. Ziskin's[11] report on a group of ninety tuberculous children in 61 per cent of whom he found rough, blowing, systolic murmurs at the pulmonic area, transmitted in some over the precordium, aroused suspicion as to the accuracy of the diagnosis. Four children were, therefore, traced and re-examined. In three the murmur was most pronounced at the second left intercostal space, and only

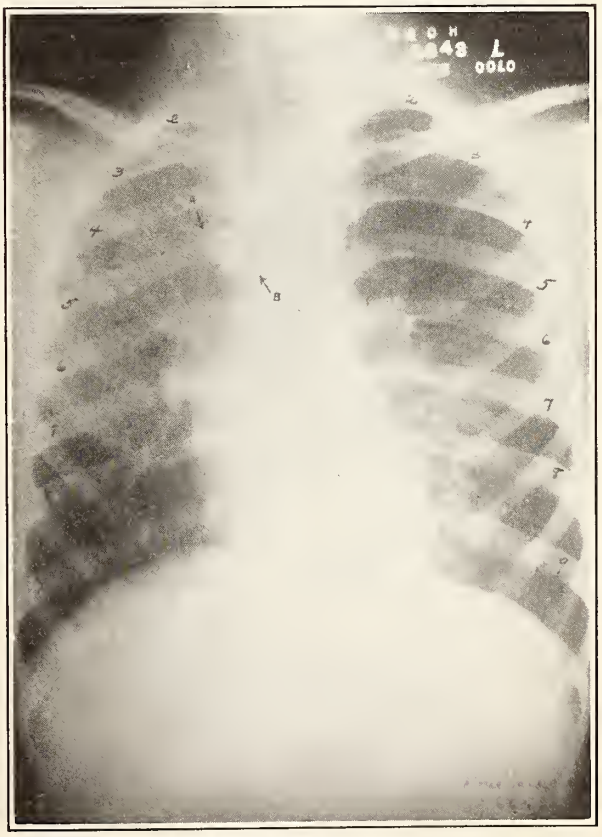


Figure 6

D. L. Girl, 10 years old. Intimate and prolonged exposure to tuberculous father. Note large calcium bearing lymph node AB and paranchymal involvement of right upper lobe. Pulmonary lesion became inactive under treatment. Patient still subject to frequent acute upper respiratory infections.

slightly audible at the apex. In the fourth case there was present a typical mitral systolic murmur, but not transmitted to the axilla. Althugh the incidence of basal heart murmurs was not as great in our series as compared with Ziskin's findings, it is well to remember that such murmurs may be due to a narrowing of the large vessels by enlarged lymph nodes.

As an illustration of how cardiac murmurs in children will sometimes cause an error in diagnosis, the following case observed during the past year is worth citing. This was a boy, 10 years old, who was admitted to the preventorium in the spring of 1927, on account of fever and 16 per cent underweight. He had been intimately exposed to his tuberculous father for three years. Cervical adenitis was quite marked. The chest findings were negative, excepting for a soft systolic murmur at the apex transmitted to the axilla. The roentgen-ray plate was at first considered negative. After several weeks of rest, the temperature became normal, only to recur following physical exertion. Because of an occasional moderate dyspnoea and a few moist rales over the base of the lungs, cardiac decompensation was suspected. The administration of digitalis was without effect. To rule out tracheobronchial tuberculosis, a roentgen-ray film in the oblique position was made, which showed a large oval shaped granular lymph node in the region of the spine opposite the sixth rib. Complete immobilization was reinstituted. During the last two months, the child has been up and about without a recurrence of symptoms. There is no demonstrable change, however, in the roentgen-ray improvement.

This case illustrates also the necessity of routine oblique plates as advocated by Pritchard[12]. In only six cases of this series were oblique plates taken. The fact that in the others a diagnosis was possible from the postero-anterior films points to the extensiveness of the disease, for, as has been shown by McPhedran[9], tracheobronchial lymph nodes must be sufficiently enlarged to project to one side of the stem in order to cast a shadow, and even then some calcium must be present for the shadow to be distinguishable.

Summary and Conclusions

In a roentgen-ray study of 300 preventorium children, sixty-six or 22 per cent showed paratracheal or bronchial lymph node tuberculosis. Of these, only 60 per cent presented during observation one or more suggestive symptoms. Persistent underweight was present in over 93 per cent. Fatigue, irritability and fever were next in order of frequency. Cough was the least important symptoms, as it was present in only 12 per cent. Cervical adenitis, while present in over 50 per cent, is admittedly by itself, not sufficient for diagnosis, unless other causes can be excluded and evidence of calcification is demonstrated roentgenographically. Physical signs were inconstant, misleading and often inconsistent with the roentgen-ray findings. The extent of the lymph node enlargement was not always proportional to the symptoms. There were many children who showed no evidence of disease excepting varying degrees of malnutrition, although their plates showed extensive glandular involvement. There was no apparent recession in the size of the lymph nodes nor a change in their appearance following clinical improvement. The conclusion is, therefore, justified that there is no one symptom or sign which would unequivocally warrant a diagnosis of tracheobronchial tuberculosis. A differentiation must be made between active and inactive disease. A diagnosis of active tracheobronchial disease must be based upon a history of exposure, a positive tuberculin reaction, definite clinical symptoms, such as real underweight with occasional fatigue, fever and possibly digestive difficulties, plus a roentgen-ray film showing calcium bearing lymph node enlargements.

REFERENCES

[1]Gohn, Anthon: The Primary Lung Focus of Tuberculosis in Children. J. & A. Churchill, London, 1916.

[2]Opie, E. L., and Aronson, J. D.: Tubercle bacilli in latent tuberculous lesions and in lung tissue without tuberculous lesions. Arch. Patn. & Lab. Med. 4:1-21 (July), 1927.

[3]Bronfin, I. D.: The Preventorium Child: A Clinical Review of 300 cases. Am. J. Dis. Child. 36:931-951 (Nov.), 1928.

[4]Chadwick, H. D.: Malnutrition and its relation to tuberculosis. Am. Rev. Tub. 5:674 (Oct.), 1921.

[5]Wolff, K. H.: A tuberculosis survey of extremely undernourished children. Am. Rev. Tub. 13:506 (June), 1926.

[6]Lawson, J. D.: The diagnosis and treatment of intrathoracic lymph adenopathy from a roentgen standpoint. Am. J. Roentg. 14:427, (Nov.), 1925.

[7]Dunham, E. C., and Smythe, A. M.: Tuberculosis of the cervical lymph nodes in infancy. Am. J. Dis. Child. 34:962 (Dec.), 1927.

[8]Clinical and x-ray findings in the chests of normal children—Committee report, Trans. Nat. Tub. Assoc. 1922, p. 529.

Wessler, H., and Jaches, L.: Clinical Roentgenology of Diseases of the Chest. Southworth Pub. Co., 1923.

[10]McPhedran, F. M.: The Diagnosis of Tracheobronchial Tuberculosis. Am. J. Med. Sc. 173:245 (Feb.), 1927.

[11]Ziskin, Thomas: Cardiac Signs in early pulmonary tuberculosis in children. Journal-Lancet, May 15, 1923.

[12]Pritchard, J. S.: Value of lateral and oblique roentgen light exposure in diagnosis of thoracic affections. Arch. Surg. 10:557, 1925.

DISCUSSION

J. J. Waring, Denver: Dr. Bronfin, with his customary fluency, earnestness and efficiency, has given a very satisfactory picture of tracheobronchial tuberculosis in children. I want to say just a few words about the diagnosis of this condition, because I feel it is an extremely important one, one about which perhaps a good deal of uncertainty exists. When a child aspirates a few tubercular bacilli into the lungs, they lodge in a certain portion of the lungs, they set up a certain reaction there which may be called the primary focus. Very rarely does that primary focus progress into active progressive disease. Almost always associated with that primary focus there is a coincident and severe reaction in the lymph glands tributary to that primary focus. That reaction in the lymphis glands is not demonstrable by the x-ray until the enlargement of the glands has reached such a point that it pushes the uninvolved lung to one side and is visible against the areated portion of the lung. It may not be visible by the x-ray until calcification has taken place in the glands. In other words, it is necessary for these glands to be enormously enlarged in order to be demonstrable by the x-ray, and it is necessary further for calcification to take place. Now, caseation takes place in these glands very rapidly, but calcification takes place only after a considerable period of time, and it has been emphasized by Dr. Bronfin that diagnosis perhaps should wait until calcification has taken place, and if we do that the disease has existed a considerable time before diagnosis has been made. I think of crucial importance are two things, the history of close exposure of the child to tuberculosis; and the second thing is a positive tuberculin test—either a positive Pirquet test or positive intra-cutaneous test for tuberculosis, because I believe the Pirquet test is gradually being superseded by an intracutaneous administration of tuberculin. Of course, the tuberculin has to be potent, and it has to be repeated at proper intervals with proper increase of doses.

In a recent number of the American Review of Tuberculosis, Kohn of the Mt. Sinai Hospital reported an extremely interesting case in a child, and I would like to give you in chronological order the events in that child's life. This is a child of six weeks of age infected with tuberculosis, presumably. This child shows no symptoms until it is nine weeks of age. At twelve weeks of age it begins to show a positive tuberculin reaction. It is not until five months of age that it is Roentgenologically demonstrable that there has been any change in the lung at all. It is not until five years of age that it is Roentgenologically demonstrable that there has been calcification of the enlarged tracheobronchial glands. The physical findings in this case were interesting, because there were enlarged tracheobronchial glands which pressed on the eparterial bronchus on the left side and caused an atelectasis, and that was demonstrable by the x-ray, but the infiltration by the tuberculous process was not demonstrable by the x-ray, so that we must bear in mind that if we wait for diagnosis on tracheobronchial tuberculosis until calcification has taken place, we are going to wait in the vast majority of instances anywhere from two and one-half to five years after infection has taken place, because it takes about that length of time for calcification to take place. The earliest case on record that I know of where there has been calcification of a primary focus in the lung was in a twenty-three-day-old child that was probably infected at birth or shortly thereafter and showed calcification in the primary focus at the end of twenty-two days. The earliest case after that that showed calcification in the tracheobronchial gland was in another case after nine months, but Opie and others have shown that the average length of time for the development of calcification is anywhere from two and one-half to five years. I will therefore say that the x-ray is of the greatest possible importance, because it not infrequently will show a primary focus or it will show reactions around it, or it will show progressive tuberculosis in some part of the chest, but we should not wait for diagnosis until calcification has been demonstrated by the x-ray.

F. P. Gengenbach, Denver: Dr. Bronfin mentioned the name of Dr. Chadwick of the Westfield Sanitarium. I just recently had occasion to abstract one of his articles, and I brought it along, because I thought it might have some figures which would bear comparison with those of Dr. Bronfin. The Massachusetts Board of Health has been making a survey of children from five to fifteen years for quite a few years, and altogether they have some 50,000 children. Their conclusions are that about 20 per cent of the school children in Massachusetts are infected with tubercular bacilli, as shown by the von Pirquet tuberculin test, and that practically one-half of these have signs or symptoms or x-ray evidence of this juvenile type of tuberculosis. Some of these figures are quite interesting. The incidence of infection as shown by the von Pirquet test in 25,000 children, was positive in 29.6 per cent, practically 30 per cent, but this particular group of 25,000 children contained 16 per cent of contracts and about 37 per cent of children who were at least 10 per cent or more under weight, so that of course would make a larger percentage than we would expect to find in the general run of children. The rural group showed about 27½ per cent reactions as compared with 29.9 for the city children. He also gives some very interesting figures as to the apparent decrease of tuberculosis in children. For instance, in 1917 they had what they called the Framingham demonstration, and at that time Dr. Bartlett gave a tuberculin test to 460 children from one to seven years of age and found that 33 per teen years of age, and 25.5 per cent reacted to cent of them were positive. The state clinic, in 1926, examined 520 children from five to fif-

teen year sof age, and 25.5 per cent reacted to the tuberculin test. But you notice that those children were older than the demonstration group, and when they segregated the ones that were comparable with the demonstration group, which would be from five to seven years—the demonstration group in 1917 showed 52 per cent positive reactors and the state clinic group of corresponding age only 14.2 per cent, a decrease of 38 per cent in nine years. He suggests that it is probable that many deaths from tuberculosis that occur in adolescence and adult life are the result of infection in childhood that was unrecognized and untreated. He believes that with the early pulmonary case in children, if found and treated before tubercular bacilli are present in the sputum, the prognosis is good. If, however, there is secondary lesion in the ulcer stage and bacilli are set free, then the child, if under sixteen years of age, will almost always die of pulmonary tuberculosis unless treatment is given. This shows the necessity of early diagnosis and trying to protect these children from going on to the adult type of tuberculosis.

J. N. Hall, Denver: I was called out and missed the paper, and I hope the particular feature I speak of was not mentioned.

Irwin stated that it was a strange thing that in all the enlarged glands he had never seen the bronchus compressed by a tuberculous gland in such a way as to shut off all respiration. I took care of a doctor who was sick with tuberculosis, and he lost the respiratory murmur over part of one lung. A diagnosis of compression from an enlarged bronchial gland was made, and at postmortem a gland was removed which was half the size of an egg and which had completely blocked the bronchus. I also had a case in which I made a similar diagnosis and confirmed it at autopsy, following the ulceration of such a gland into the trachea, into and through the bronchus. That, to some doctors would seem to be a very strange thing. I gave an address on this subject twenty-eight years ago this summer, and so I have been interested in it for a long time. In looking it up I found two or three cases where the bronchus had been ulcerated but later ruptured and caused death by suffocation.

E. Friedman, Denver: We cannot overestimate the value of a paper such as Dr. Bronfin has presented to us this afternoon, because of the exceptional facilities the doctor has in studying these cases and observing them over a much greater length of time than is possible for those of us who are in private practice. In connection with tuberculosis in childhood, particularly tracheobronchial tuberculosis, probably the most outstanding feature is the difficulty of making a diagnosis. In a large number of these it is almost impossible to make a positive diagnosis, it can only be arrived at by exclusion. I think we should bear that in mind. I am satisfied that the profession transgresses very often in overlooking early tuberculosis in childhood, but it transgresses even more often in making the diagnosis of tuberculosis when the facts in the case do not warrant it. Many times such conclusion is arrived at on the strength of protracted contact, such as obtains when either parent has tuberculosis; or when a positive tuberculin test is encountered. We cannot make a diagnosis of tuberculosis on the strength of these two findings alone; we can only say that infection has in all probability occurred, but we cannot maintain with any justification that tuberculosis exists. Very often a diagnosis is made on the basis of x-ray findings. I regret to say that the x-ray diagnosticians make altogether too many diagnoses of tuberculosis. I think such practice is frequently not warranted.

Then again, the general symptoms associated with tuberculosis are indistinguishable from those that we get in any number of conditions peculiar to childhood. Underweight is not indicative of tuberculosis; the temperature in the afternoon is not indicative. These are encountered very frequently among children where the parental discipline is lax. Many children go to bed at 10 or 11 o'clock; they eat and do just about what they please; attend altogether too many movies; and in many cases too much friction obtains in the home. All or any of these things will make for the production of symptoms such as Dr. Bronfin has enumerated. When we can exclude all these conditions, and especially exclude focal infections, notably in the tonsils and teeth, the aforementioned symptoms assume importance in the diagnosis of tuberculosis.

Some of the figures that Dr. Bronfin has given us are strikingly at variance with my own experience. That does not mean to say, of course, he is wrong and I am right; only that his are a little unusual. The percentage of underweight was 94. I think it is uncommon to find among children infected with tuberculosis so large a percentage of malnutrition or underweight. Many authorities emphasize the fact that underweight is not especially prevalent among the tuberculous children. Again, a definite exposure to tuberculosis in 80 per cent of the cases is a very high incidence; and I can only account for that by the fact that the institution with which Dr. Bronfin is connected caters especially to those children who have been exposed to tuberculosis. These figures do not represent the general conditions as we see them in private practice. One hundred per cent positive tuberculin reactions is a very high percentage; 40 per cent approximates more closely the incidence of positive tuberculin, and among the non-contact cases, it is usually only half as high.

Dr. Bronfin (closing): Dr. Schaefer discusses the importance of the x-ray in diagnosis. If I have conveyed the idea that the x-ray is not essential for a correct diagnosis, that was not my intention. What I have tried to stress was that the x-ray alone must not constitute a basis for diagnosis if errors are to be avoided, for from the film alone it is often difficult to distinguish between active and inactive disease.

Dr. Waring's point that complete calcification does not take place for at least three years from the time of infection is indeed well taken. Certainly we must not rely solely on nature, but should institute all known measures that will promote calcification, for as long as the latter is not complete, there is more danger of a dissemination of infection leading to actual disease. Underweight alone, even when associated with an x-ray film showing calcified lymph nodes, is not sufficient to make a diagnosis of tracheobronchial tuberculosis. It is important, however, to remember that calcification and caseation may co-exist, the former throwing a shadow, the latter not casting a distinctive shadow on the film. Therefore, when all other causes for underweight have been excluded and there is evidence of a massive tuberculous infection, the malnutrition should be attributed to the infection, and appropriate treatment instituted.

Dr. Hall's description of the case where the caseating lymph node broke into a bronchus, resulting in a spontaneous cure, is very interest-

ing. We have observed six or eight adults who gave a history of cough and expectoration for brief periods with a certified examination of sputum showing tubercle baccili. These patients were subsequently observed for months and years, and showed no evidence of a pulmonary lesion excepting moderate hilum enlargements. It is quite likely that in these individuals caseating lymph nodes broke into the bronchus, resulting in a short period of cough and positive sputum and finally complete healing. Such condition may occur in children, although I have never observed such a case.

Time will not permit me to describe in detail the treatment accorded to these children. A well-balanced, nutritious diet without any food between meals has given us the best dietetic results. Heliotherapy has, of course, been our mainstay, in addition to rest and regulated activities.

Dr. Friedman expressed surprise at the large percentage of underweights and positive reactors. It must be remembered that practically every child admitted to the Preventorium is underweight and a large number give a history of definite exposure. It is, therefore, not surprising that in the group of selected cases showing definite tracheobronchial tuberculosis to find 80 or 90 per cent underweight or 100 per cent with a positive tuberculin reaction. The ninety unselected children showed only sixty-three reactors.

As regards the differential diagnosis of tracheobronchial tuberculosis and Hodgkin's disease, I can only say that the lymph node enlargement in Hodgkin's disease is generally much more extensive and rapid in its course. Tuberculous lymph nodes rarely reach such proportions excepting in fatal cases. However, when an unusually wide mediastinal shadow is observed, it is well to think of the possibility of Hodgkin's disease.

In conclusion I wish to thank all those who participated in the discussion of this subject.

RETRO-DISPLACED UTERUS. ITS SIGNIFICANCE*

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Displacements of the uterus, particularly the backward displacements, have, since the inception of gynecology as a surgical specialty, been the alleged cause of much pelvic distress.

In recent years the growing tendency toward conservatism in the treatment of these conditions, naturally follows the knowledge that simple retro-displacements are physio-anatomical rather than pathological.

It is rare indeed that the gynecologist of today advises or sanctions operative treatment for uncomplicated retro-displacements.

The normal uterus is freely movable, and, depending upon various factors, may vary normally from extreme anteversion to a marked retroversion, the excursion depending in a great measure upon the distension of the bladder or the bowel.

The simple backward displacement of the movable, normal uterus without retrocession or decensus is never a pathologic condition.

The uncomplicated retro-flexed uterus is usually congenital, but unlike the retroversion, does not enjoy such a wide excursion in the antero-posterior plane of the pelvis.

In either case where the uterus is maintained at or near its normal level in the pelvis, i. e., when neither retrocession or decensus exists, the condition does not give rise to symptoms and is frequently only detected on routine examination.

When pelvic symptoms exist in the presence of the above conditions, other causes must be carefully and systematically sought out as has been emphasized by, McGrath,[1] Oldfield,[2] Bland,[3] Douglas,[4] and others. For rarely will the surgical correction of uterine retro-displacements alone relieve the patient of pelvic pain or discomfort.

That this contention may be further emphasized, I have tabulated one hundred cases. Fifty from my private practice, among women living under most favorable conditions. Fifty from dispensary practice where the living conditions were unfavorable. These cases were not selected but taken at random from the case records of women who sought relief from pelvic pain or discomfort, including "backache," and in all of whom a retroverted uterus was the first or chief apparent abnormality.

In other words, we have under consideration one hundred cases of retro-displaced uteri in which pelvic distress or backache is marked.

Proceeding on the assumption that the displacement itself was of little or no clinical importance, the cases were studied to

*Delivered before the fifty-eighth annual meeting of the Colorado State Medical Society, Colorado Springs, September 12, 1928.

determine what other conditions were present as a causative factor of distress, with the following interesting results:

The urinary tract was found responsible in 6 per cent of the cases as follows: prolapsed kidney 2, cystitis 1, urethral caruncle 1, urethral stricture 1, periurethral abscess 1.

The appendix was definitely at fault in 6 per cent of the cases, in which a chronic appendicitis with adhesions was demonstrated.

The ovaries were the cause of trouble in 12 per cent, there being nine cases of ovarian cysts and three of prolapsed, congested and tender ovaries.

Definite disease of the cervix was found in 51 per cent of the cases. Thirty-eight had old lacerations with erosions or eversions. Six had marked endocervicitis. One a cervical stenosis. Three cervical polyps, and three showed extensive hypertrophy with cysts.

Thirty-three per cent suffered from pelvic inflammatory disease, three pyo-salpinx and thirty chronic pelvic inflammation with adhesions.

Twenty-seven per cent suffered from birth injuries of the pelvic floor, relaxed perineum, cystocele and rectocele.

Uterine fibroids were found in 5 per cent. Only 3 per cent showed decensus and 1 per cent retrocession. In one case only no complicating pathology was demonstrated.

There were found in this series of one hundred cases of uterine retro-displacement, one hundred and fifty-one complicating conditions, any one of which will give rise to symptoms, commonly attributed to the displacement, which will not be relieved by a correction of the displacement.

Since Alexander's first operation in 1881 for the correction of a movable backward displaced uterus, more than one hundred methods and modifications have been devised for the correction of this condition. With few exceptions, when properly performed, any one of the procedures will bring and hold (at least temporarily) the uterus in ante position; and with few exceptions will the procedure relieve the patient's discomfort unless the other causes are found and properly treated at the same time.

Furthermore, any operation for the correction of an uncomplicated retro-displacement, places a normally movable organ in a more or less immovable position, if not intentionally by means of the surgical procedure, then unintentionally through adhesions which occur in the traumatized peritoneum.

BIBLIOGRAPHY

[1]McGrath, J. F., Retroposition of uterus; present day estimate, Surg. Gynec. Obst. 42:241-244, Feb., '26.

[2]Oldfield, C., Symptoms without signs, Tr. Edinburgh Obst. Soc. pp. 97-111, 1925-26; in Edinburgh M. J., July, '26.

[3]Bland, P. B., Symptoms and treatment of uncomplicated displacements of uterus, New York State J. M. 27: 181-187, Feb. 15, '27.

[4]Douglass, M. D., Surgical treatment of retrodisplacements of uterus, Surg. Gynec. Obst. 45: 230-234, Aug., '27.

DISCUSSION

C. B. Ingraham, Denver: Several years ago I went over a series of cases for the purpose of determining retro-displacement following childbirth, and in going over several hundred there were about two out of five cases which followed pregnancy. Now, that is recognized as probably the commonest etiological factor in this condition. The uterus is a large organ and the ligaments supporting the structures do not keep up with it during involution; they lose their tone, the woman is on her back and the production of this condition is acquired mainly at that time. I think the next most frequent cause would be inflammatory adnexal disease pulling the uterus backward. Because the uterus has become replaced during the puerperium it is important following labor that examinations be made and the case followed up. As Dr. Powell has said, those who before birth do not have symptoms may acquire symptoms afterwards. We may examine our patients for two weeks after the birth of the child, and we will find a certain number retroverted at that time, and if we examine these patients you will find a certain number of those who were previously in position have become retroverted. The so-called monkey-walk that Pollock advocates, walking on their feet and hands and shaking the uterus forward, will probably help to obviate this condition later, as well as the knee chest position.

While retroversion of the uterus may be uncomplicated and give no symptoms, we know that is one of the reasons for abortion.

As regards the treatment of these conditions, if we put in a pessary after the condition is noted following labor, we will find in most every instance, the uterus will stay, provided that pessary is worn five or six weeks. If it is taken out and the retroversion recurs, I have considered that the backward position was a condition existing before pregnancy. I say this to show the importance of putting in a pessary; it is the only time we will get a correction of this condition without an operation.

THE BROMSULPHALEIN LIVER FUNCTION TEST AS A DIAGNOSTIC AID IN HEPATIC DISEASES*

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After the introduction in 1925, by S. M. Rosenthal and E. C. White,[1] of bromsulphalein (phenoltetrabromphthalein sodium sulphonate), as a dye for estimating hepatic function, I became intensely interested in this subject from a diagnostic standpoint and began a series of tests on patients in the clinic of my former associate, Dr. J. N. Hall, my service at Denver General Hospital, and my own private practice.

Previous to the introduction of bromsulphalein, phenoltetrachlorphthalein[2] was used, but Maurer and Gatewood,[3] and also Rosenau[4] called attention to the dangers of its use, and a new dye had to be developed. To overcome these difficulties Rosenthal and White[5] conducted a series of experiments and developed bromsulphalein, which was found to be less irritating to the vein wall, and remained in the blood stream of dehepatized rabbits for an hour, with only 5 to 10 per cent of excretion; while only small traces of the dye were found excreted in the urine of normal animals. With their experimental findings and by tests performed on human beings, Rosenthal and White developed a technic for the estimation of liver function by determining the rate of removal of bromsulphalein from the blood stream. This technic has been followed almost as originally recommended in all my tests and is as follows:

Technic

The patient is weighed and the dosage of bromsulphalein calculated on a basis of 2 mg. per kilogram of body weight. The body weight of the patient in pounds divided by 55 will give the exact quantity in cubic centimeters of 5 per cent solution required. The required amount is drawn into a sterile 5 c. c. syringe and slowly injected into an arm vein. Care should be taken not to allow infiltration of the dye outside of the vein. Five minutes after injection a sample of blood is drawn, preferably from the opposite arm, into a dry syringe or centrifuge tube. It is very important that the syringe or tube be dry as water in the tube might cause hemolysis and spoil the test. In my tests blood was drawn at the end of 5 minutes, 15 minutes, 30 minutes and one hour. However, for practical purposes, only one sample need be taken at the end of one-half an hour, thus saving the patient a great deal of discomfort.

After the blood has coagulated it is centrifugalized, and the clear serum is pipetted into two small test tubes. To one of these is added about four drops of a 5 per cent solution of sodium hydroxid to bring out the color of the dye and to the other four drops of 2 per cent hydrochloric acid to clear the serum of any hemolysis. (Rosenthal used only one to two drops of 10 per cent sodium hydroxid and a drop of 5 per cent hydrochloric acid, but I find my method brings out the color and clears the serum better.) The amount of dye present is now estimated by direct comparison with a series of standards.* The tube of clear, acidified serum is placed in front of the standard in a suitable comparator box, and by simultaneously looking through both tubes a comparison can be made with the colored alkalized serum. The standards may be prepared by adding 4 mg. of bromsulphalein to 100 c. c. of water alkalized with 0.25 c. c. of a 10 per cent solution of sodium hydroxid. This represents the 100 per cent standard. By proper dilution with similar alkalized water, ten standards are prepared, ranging from 10 to 100 per cent. Five cubic centimeters of each standard may be sealed in a small test tube, and no deterioration in color will occur for several months if they are kept in the dark. The standards should be checked every few months as some change may occur and spoil the results.

Normals

In order to establish normal values, Rosenthal and White performed tests on twenty-

*Read before the Colorado State Medical Society, Colorado Springs, Colo., Sept. 12, 1928.

*Permanent standards with comparator box may be obtained from Hynson, Westcott and Dunning, Baltimore, Md.

TABLE I

Cases With Normal Livers.

Case	Name	Age	Sex.	Percentage of Dye in Serum 5 min	15 min	30 min	Notes
1	C. B. B.	32	M	22	15	0	Op. for hernia & ch, app
2	R. H. B.	27	M	28	15	0	Op. for chronic appendix
3	M. D.	21	F	35	20	0	Op. for chronic appendix
4	J. F. L.	31	M	15	10	0	Op. for ventral hernia
5	R. O. A.	35	M	25	15	0	Op. for hernia & appendix
6	F. H. M.	31	M	10	7	0	Op. for atrophic app. & hernia
7	L. T. L.	52	M	24	12	0	Op. for atrophic appendix
8	R. L.	21	M	34	17	0	Op. for chronic appendix
9	T. R. L.	65	M	25	15	0	Op. ventral hernia & old ulcer
10	L. T. H.	31	F	36	15	0	Op. retroverted uterus & app
11	C. B. F.	26	M	40	22	0	Op. chronic appendix
12	H. M.	41	F	18	12	0	Op. fibroid uterus removed
13	E. B. M.	28	M	15	7	0	Op. old gastric ulcer
14	F. C. N.	61	M	32	25	0	Op. diverticulitis
15	D. W. S.	27	M	32	15	0	Autopsy brain tumor
16	W. W. W.	35	M	20	10	0	Op. adhesions at caecum
17	C. F. F.	24	M	28	17	0	Op. for acute appendix
18	R. P.	21	M	33	15	0	Op. for acute appendix
19	E. H.	30	M	31	15	0	Autopsy pulmonary embolism
20	L. E. S.	56	F	25	12	0	Op. resection ulcer stomach
21	H. E. W.	39	M	42	25	5	Autopsy bronchial pneu. int. neph.
22	A. V.	20	M	35	18	0	Op. acute appendix
23	F. G.	30	M	37	18	Trace	Autopsy tuberculosis
24	W. L. W.	54	M	25	10	0	Autopsy fracture skull
25	I. C.	51	F	37	15	0	Op. retroverted uterus.
	Average			28	15	0	

five patients in which no evidence of liver disease was present. Five minutes after injection, from 20 to 50 per cent of the dye was present in the serum, with an average of 35 per cent. In thirty minutes after injection the serum was practically free from the dye. Blumer[6] of Birmingham, England, who was rather disappointed in the results from his series of cases as to a practical application of this test, found his normals showed a retention of from 5 to 45 per cent at the end of thirty minutes.

In view of these discrepancies, when I started my work I decided to establish a normal of my own. I did a series of tests on patients who had no evidence of liver disease and in whom I had or would be able to view the liver at operation or autopsy. In this series I was successful in actually seeing and having the surgeon examine the liver in twenty-five cases as shown in table 1.

In these cases the following results were obtained: Five minutes after the dye injection, from 10 to 42 per cent of dye was present in the serum with an average of 28 per cent. Fifteen minutes after the dye injection, from 7 to 25 per cent of the dye was present in the serum with an average of 15 per cent. In all my cases at the end of thirty minutes practically no dye was present in the serum, thus differing greatly from Blumer, but agreeing with Rosenthal and White.

These normals at the end of five minutes are a little lower than those obtained by Rosenthal and White, which might be due to the fact that all my cases were proven to have normal livers either at autopsy or operation; but the degree of error in the reading of the standards might vary to this extent. As no other standard has been reported for fifteen minutes, I have taken my average of 15 per cent as a standard.

Results

From my series of tests I have chosen fifty-four cases which I will report as follows: nine cases of cancer of the liver; seven cases of cirrhosis of the liver; ten cases of obstructive jaundice; one case of acute yellow atrophy of the liver; six cases of catarrhal jaundice; ten cases of chronic cholecystitis; eleven cases of hepatic enlargement from cardiac disease. The diagnosis in all these cases was proven and the liver examined at operation or autopsy, except the six cases of catarrhal jaundice and seven of the cardiac cases, in which the diagnosis was very evident.

In all my cases I found as, did Friedwald and Armstrong,[7] no indication of local inflammatory reactions, thromboses or other

TABLE II

Cases of Cancer of the Liver.

Case	Name	Age	Sex.	Percentage of Dye in Serum 5 min	15 min	30 min	1 hour	Notes
1	J. W. S.	66	M	80	....	20	5	Followed cancer of rectum. Died 2 months after last test.
	2 mo. later			90	65	50	22	
2	M. S.	55	F	100	90	....	50	Also diabetic died in 2 weeks.
3	A. M.	45	M	75	55	20	10	Died 2 mo. later ¾ liver involved.
4	J. A. P.	50	M	55	40	20	10	At Op. nodular liver.
5	A. F. M.	36	M	100	95	90	70	Died 1 week later, entire liver involved, enlarged 4 inches.
6	J. F. F.	52	F	65	54	25	5	Died in 3 mo., also cancer of stomach.
7	F. A. B.	46	M	50	35	20	5	Op. gall stones and cancer starting in one lobe of liver.
8	J. Z.	60	F	90	35	20	5	Op. after 1st test cancer involving ½ liver, also pylorus. Died 1 week after last test.
9	L. W.	66	F	85	70	20	0	Cancer suspected at first test; refused operation. Died 2 weeks after last test. Liver nodular throughout at autopsy.
	6 mo. later			100	95	40	20	

toxic signs in the form of chills or fever, following the use of the dye.

Cancer of the Liver

In all my cases of cancer of the liver there was marked retention, even at the end of an hour. In the cases 1 and 9, where additional tests were made at later dates, each showed an increase of dye retention in proportion to the apparent advance of the disease.

Cirrhosis of the Liver

The seven cases of cirrhosis of the liver show dye retention in proportion to the amount of liver tissue destroyed. In two cases in which the test was repeated some time later the retention was markedly increased over the first test. When the tests were taken a few weeks before death, the retention was markedly high with as much as 90 per cent retention at the end of thirty minutes.

In case 2, the patient had a moderate amount of retention with a greatly enlarged liver and as the disease progressed the liver apparently became more atrophic and could not be felt and at the same time the dye retention was greatly increased. I wish later to compare this with some of my cases of hepatic enlargement in cardiac diseases.

Obstructive Jaundice

In the ten cases of obstructive jaundice the dye retention was high at the end of thirty minutes, but at the end of an hour it had practically all disappeared from the serum, except in three cases, 3-7-10, which died soon after the test was taken. Those cases, 1-8, in which operations were performed and the obstructions removed the retention had a tendency to return to normal after a few months, thus showing that there was some destruction to the liver but not of a permanent nature.

Acute Yellow Atrophy of the Liver

In the one case of acute yellow atrophy of the liver the retention of the dye was

TABLE III

Cases of Cirrhosis of the Liver

Case	Name	Age	Sex.	Percentage of Dye in Serum 5 min	15 min	30 min	1 hour	Notes
1	C. M. B.	50	M	65	....	25	10	Op. biliary cirrhosis. Died 7 months later.
2	C. D.	48	M	95	45	15	0	At time of first test patient had liver enlarged 5 inches. At last test liver not felt. Died 1 month later.
	8 months later			100	90	80	30	
3	H. G. P.	68	M	80	40	15	0	Op. after first test G. B. removed starting cirrhosis of the liver.
	9 months later			95	80	60	40	Op. after first test G. G. removed starting cirrhosis of the liver. At last test liver enlarged and ascites. Died 2 weeks later.
4	J. P.	40	M	55	35	17	....	Ascites for 1 year. Died 8 months later.
5	C. W. B.	48	M	85	35	15	....	Died of lung hemorrhage 1 week after test, autopsy hypertrophic cirrhosis also pyopneumothorax.
6	W. A. P.	55	F	90	....	45	20	Progressive liver enlargement for 2 years. Died 2 weeks after last test. Biliary cirrhosis.
7	G. W. L.		M	100	95	90	....	Jaundiced for 3 weeks, vomiting, no temp. No previous history obtained. Marked portal cirrhosis.

TABLE IV

Cases of Obstructive Jaundice.
Percentage of Dye in Serum

Case	Name	Age	Sex.	5 min	15 min	30 min	1 hour	Notes
1	A. F.	60	M	60	40	15	0	Slight jaundice at operation. GB full of stones and one in the common duct.
	2 months later			45	25	5	0	
	2 years later			35	20	0	0	
2	I. W. B.	65	F	75	35	0	0	Op. gall bladder full of stones, one in common duct only causing partial obstruction.
3	F. E. B.	50	M	100	100	95	40	Gall bladder removed 3 months before Op. stricture of common duct and liver fibrous. Duct anastomosed to stomach. Died 1 month after last test.
4	P. K.		M	95	----	35	10	Liver enlarged before operation. Jaundice for 2 years recurring. Op. Stone in common duct.
5	F. L.	38	F	80	----	10	----	Jaundice and sick 2 weeks, Op. stone in common duct.
6	L. M.	28	F	65	----	10	----	Stone in the common duct at Op. Jaundiced 3 weeks mild.
7	L. E. H.	64	M	90	85	75	20	Deep jaundice for 3 months, cancer pancreas, causing block. Died after operation.
8	O. A.	55	M	85	60	20	0	Stone in common duct. Mild jaundice.
	3 months later			40	25	5	----	
9	J. D. A.	35	F	100	70	5	----	Op. cancer pancreas, partial occlusion of the duct. Slight jaundice. 2 weeks.
10	P. F.	40	F	100	90	50	15	Died 2 days later. Autopsy. Large abscess of gall bladder blocking common duct. Jaundiced

very high, 75 per cent of the dye being present at the end of an hour. The extremely high retention, which gave evidence of almost total liver destruction, helped a great deal in making an accurate diagnosis before death.

TABLE V

Acute Yellow Atrophy of the Liver
Percentage of Dye in Serum

Case	Name	Age	Sex.	5 min	15 min	30 min	1 hour	Notes
1	C. N.	20	F	100	100	90	75	Test taken 2 days before death. Sudden onset 2 weeks before vomiting, progressive jaundice, ecchymosis, coma and death.

Catarrhal Jaundice

In the six cases of catarrhal jaundice there was marked retention, but the retention seemed to vary with the degree and length of jaundice. In the cases 1-3 in which tests were repeated some months after the attack there was a tendency to a return to normal.

Chronic Cholecystitis

In all ten cases of chronic cholecystitis there was practically no dye retention at the end of thirty minutes, except in one case, 8, in which there was a suspicion of cirrhosis of the liver. The liver appeared normal in the other nine cases.

Cardiac Cases

In the eleven cases of cardiac diseases with liver enlargement there was a marked retention when the test was taken at the height of cardiac decompensation, but as the heart began to compensate, the liver to lessen in size, and the oedema to disappear, the retention was lessened and often returned to almost normal. Fully compensated hearts did not show any more abnormality with the test than some of my nor-

TABLE VI

Cases of Catarrhal Jaundice.
Percentage of Dye in Serum

Case	Name	Age	Sex.	5 min	15 min	30 min	1 hour	Notes
1	E. B.	25	F	100	----	65	10	5 weeks duration; still slight jaundice at 2nd test.
	3 weeks later			75	----	40	0	
2	K. T.	34	M	55	40	27	5	Jaundiced 3 weeks.
3	L. H.	27	M	65	----	35	0	Jaundiced 1 month.
	6 months later			35	20	0	0	
4	P. G.	45	M	60	----	20	0	Mild jaundice 3 weeks.
5	C. A. S.	27	M	----	65	50	10	Jaundiced 4 weeks.
6	L. J.	17	F	45	20	5	0	Jaundiced 2 weeks; liver edge felt.

TABLE VII

Cases of Chronic Cholecystitis.

Case	Name	Age	Sex.	Percentage of Dye in Serum 5 min	15 min	30 min	Notes
1	K. H.	36	F	46	25	0	
2	J. L.	49	M	65	38	5	Also gall stones.
3	C. B. L.	28	M	28	17	0	
4	O. E. A.	38	M	43	27	0	Appendix chronic.
5	C. R. B.	26	F	15	10	0	
6	R. S. M.	38	F	35	18	0	
7	J. T. L.	60	M	21	12	0	Old healed ulcer of pylorus.
8	J. B.	25	F	75	45	15	Some enlargement of liver and suspicious cirrhosis.
9	H. L.	20	F	37	----	0	
10	C. H.	36	F	23	10	0	

mal cases. In the two cases, 3 and 5, in which retention was not lessened after the heart had compensated, cirrhosis of the liver was suspected. This deduction was made after study of my proven cirrhosis cases, and from the fact that one of the cases proved to be cirrhotic at autopsy.

Obstetrical Cases

The nature of my work does not bring me in contact with many obstetrical cases, except in consultation for some other physical condition, so I have not had the opportunity to investigate the liver in pregnancy cases. However, Isadore A. Segal of Baltimore has shown by a report on 174 patients that there is dye retention in the toxic type of vomiting, while in pure neurosis there is no retention; also that the nephritic type of toxemia may be differentiated from the pre-eclamptic and eclamptic types by the normal retention in the former and a small amount of retention in the latter.

SUMMARY

In all cases of definite liver destruction the percentage of dye retention was very high and continued to increase with the advancement of the disease; while in the extra hepatic diseases the retention was high in the cases in which obstruction was present and decreased with the removal of the obstruction. In extra hepatic diseases where no obstruction was present to destroy the liver cells the retention of the dye was almost normal.

It appears that in the more destructive diseases such as cancer, cirrhosis, etc., the retention of the dye at the end of five and fifteen minutes is somewhat higher than in

TABLE VIII

Cases of Hepatic Enlargement from Cardiac Disease.

Case	Name	Age	Sex.	Percentage of Dye in Serum 5 min	15 min	30 min	1 hour	Notes
1	J. F.	60	M	90	50	20	0	At time of first test myocardial failure, oedema, ascites, liver enlarged 4 inches. At 2nd test liver not felt, heart comp. Died 1 year later. Liver normal at autopsy.
	9 months later			65	----	0	0	
2	W. P.	55	F	80	----	25	5	Mitral insufficiency, liver enlarged, 6 months later heart comp; no oedema.
	7 months later			45	20	0	----	
3	M. M.	65	F	60	40	10	0	Myocardial failure with ascites and enlarged liver. Heart comp. and liver smaller in 4 months. Autopsy showed also cirrhosis of liver.
	5 months later			90	75	30	5	
4	J. W.	40	M	75	----	5	----	Previous to test heart decomp. and liver enlarged. At test liver not felt. Heart comp.
5	J. H. F.	35	F	80	50	20	0	Mitral insuff. Oedema, ascites, liver enlarged.
	4 months later			95	90	30	20	At 2nd test no oedema or ascites. Liver enlarged, cirrhosis suspected.
6	J. F. K.		M	100	90	70	30	Died I week later. Liver showed only passive congestion.
7	L. W.	25	M	35	20	0	----	Malignant endocarditis.
8	F. J. S.	55	M	95	87	40	15	At 1st test dilated heart, mitral insuff, auricular fib. Liver enlarged. At 2nd test perfect comp.
9	H. M.	40	M	90	50	10	----	Aortic stenosis and incompetence; liver slightly enlarged. No oedema or orthopnoea.
10	R. L.	70	M	100	95	30	?	Myocardial failure; patient in coma at time of test, slight liver enlargement.
11	A. H.	84	F	100	90	50	----	Mitral insuff. Generalized oedema, ascites. Liver enlarged 5 inches.

the cases of enlargement from obstruction of the mechanical or catarrhal type.

This test may be of some help a short time after an attack of catarrhal jaundice, as a normal or much lowered retention than was found at the height of the attack would prove no other pathology was present in the liver.

In cases of long standing enlarged liver, where the liver begins to decrease in size, atrophic cirrhosis may be diagnosed by the increase of the dye retention in the serum.

The Bromsulphalein test should not be confused with the other so-called liver function tests, as it measures the amount of destruction of liver cells or tissue, inasmuch as they are not capable of absorbing the dye from the blood stream, while other tests such as the Van den Berg method, measure the pigment metabolism and tell us whether the jaundice is obstructive by a direct reaction or hemolytic by an indirect reaction.

The Bromsulphalein test should be used as a check to determine whether the liver is being damaged in all cases of so-called long standing "gall bladder disease," and if a retention is shown, the patient may be more easily convinced that an operation is necessary to prevent further destruction of the liver. On the other hand cases which show no definite block of the flow of bile, and have no definite cardiac decompensation, and in which an inoperable disease of the liver is suspected, may be saved an unnecessary operation if the dye retention of the liver is carefully studied.

DISADVANTAGES

Although this test has many advantages, it is not devoid of disadvantages, of which there are many:

1. There is always danger of a large degree of error due to the personal factor involved in color matching, therefore results of various workers are difficult to compare, and also the results of any one individual may be subject to some variation.

2. There is such a great variation in normal findings that a small amount of liver damage is hard to determine.

3. There is no way in this test of differentiating cirrhosis, carcinoma, obstruction of the liver, or fatty liver, without other definite physical or pathological signs.

4. As shown, by Mann and Bollman[9] of Rochester, the hepatic functions are many and varied and more or less independent of one another, and the disturbance or cessation of one function is consistent with normalcy in the other. Therefore it seems almost futile to evolve a test that would be an accurate indication of the function of the liver as a whole.

5. The test is rather obnoxious to the patient as it requires several venous punctures.

6. It requires a good deal of time and patience on the part of the physician to perform the test.

7. There is such a wide variation in results in similar diseases with apparently the same amount of destruction of the liver that a single test cannot be relied upon.

CONCLUSION

However, cognizant of these disadvantages as I am, I believe the Bromsulphalein test is the most practical and dependable of the liver function tests, or rather, biliary permeability tests that have yet been developed. I believe that further study of this method will make it still more practical. As already pointed out, this test is very valuable in the diagnosis and the differential diagnosis of various conditions, and should be performed in all cases that show involvement around the liver.

I have reached the same conclusions as shown in the studies of Green, McVicar, Snell, Rowntree, Walters[10] and others, that a single test alone cannot be relied on as indicating the presence of definite hepatic disturbance, but a combined study of several positive tests along with a serum bilirubin and a Vanden Bergh test is of great diagnostic value when performed on patients with hepatic involvement.

REFERENCES

[1]Rosenthal, S. M., and White, E. C.: Jour. A. M. A. 84, 1112 (April 11), 1925.

[2]Rosenthal, S. M.: Phenoltetrachlorphthalein Test for Hepatic Function. J. A. M. A. 83: 1049 (Oct. 4), 1924.

[3]Maurer and Gatewood: J. A. M. A. 84, 935 (March 28), 1925.

[4]Rosenau: J. A. M. A. 85, 2017 (Dec. 26), 1925.

[5]Rosenthal, S. M., and White, E. C.; J. Pharmacol, and Exper. Therap., 19: 385 (June), 1922.

Rosenthal, S. M., and White, E. C.: J. Pharmacol, and Exper. Therap., 24: 265 (Nov.), 1924.

[6]Julius Friedwald, and Armstrong, W. W.: Medical Journal and Record, 124: 679 (Dec. 1), 1926.

[7]Blumer, Ernest, Quarterly Jourl. of Med., 20 (Jan.), 1927.

[8]Isadore A. Segal; Am. Jr. Ob. and Gyn, 16: 300 (Sept.), 1927.

[9]Mann, F. C., and Magath, T. B., and others; Arch. Int. Med., 30: 73-84 (July), 1922; also, 30: 171-387; also 1923, 31, 797-806; also Bollman, J. L., Mann, F. C., & Magath, T. B., and others: Am. J. Physiol 74: 49-60 (Sept.), 1925; also 74: 497-510 (Nov.), 1925.

J. Physiol: 78: 258-269; also Arch. Path., 1: 681-710 (May), 1926.

Mann, F. C.: Virginia Med. Mo. 54: 1-5 (April), 1927.

[10]Green, McVicar, Snell, Walter, Rountree, Conner, and others: Arch. Int. Med. 36: 248 (August), 1925; also 36: 273 (August), 1925; also 36: 418 (Sept.), 1925; also 36: 542 (Oct.), 1925; also 38: 167 (Aug.), 1926; also 40: 159 (Aug.), 1927; also Jour. A. M. A. 85: 1476 (Nov. 7), 1925.

Martin W. B.: Virginia Med. Mo. 54: 5-8 (April), 1927.

DISCUSSION

H. B. Mann, Denver: Dr. Yegge has presented a paper which is unusual in one feature in regard to this type of work, namely, as you recall, he has an autopsy or an operative record of most of the patients in which he performed the test. This, I think, is of great value in adding to the importance of his paper, because he knows somewhat then in regard to the condition of the liver which he is testing. His work, I think, is in accord, as stated, with much of the other work dealing with this test, that it is of some value in determining the hepatic activity in regard to one of the functions of the liver, namely, its secretory activity or function, and in this manner it should prove, and is proving of definite value to clinical medicine. If you noted, however, most of the conditions in which he has used the test in his tables were those in which the liver was very badly damaged. At the present time I do not believe the test, as he pointed out, will show slight damage to the liver or damage which you might be interested in in evaluating the patient as a surgical risk. The test is also deficient, as he pointed out, from the fact that it only takes into consideration one functional activity of the liver. I feel the test is of value and should be used until we get something better. Dr. Yegge has presented his data and the consideration of the value of the test in a very admirable way.

J. N. Hall, Denver: I saw a considerable number of cases that Dr. Yegge has reported before the test was made, and am more or less familiar with them afterwards. The pertinent thing to me is how closely the tests made and the damage to the liver correspond. For instance, when you see a man with considerable enlargement and jaundice, a man losing a great deal of weight, we can very well figure his liver has lost a good deal of its function. There was no case in which there was notable variation between the clinical estimate of the damage that was done and that shown by the disease. I think that the work which shows so much care, deserves a great deal of commendation, and especially regarding the autopsy report which is worth ten reports on a lot of theory.

Dr. Yegge (Closing): First, I want to thank my former chief and associate, Dr. J. N. Hall, for giving me the inspiration to start this work, also I wish to express my appreciation to the various surgeons and autopsy surgeons who gave me their opinion as to the condition of the liver in the cases in which the abdomen was opened.

I want to thank Dr. Mann for his discussion, and I agree with him, that the small amount of liver damage is hard to determine by this test. You cannot tell, and the only way you can tell is when there is a large amount. The variations in the dye retention in destructive diseases of the liver, with apparently the same advancement of liver destruction as found by other investigators and myself, may be explained by the fact that the liver has the power of regeneration of cells, as shown by Dr. Mann in his paper this morning. Therefore, it is only right to assume that we will have a great amount of variation in these patients, because one patient may have a large amount of regenerative power, while another will have none. If we keep this in mind in interpreting these tests, we will have less confusion as to the exact status of liver tissue functioning. I wish to emphasize that a high amount of retention must be regarded as evidence of serious liver damage, especially if it remains high. If nothing else could be shown by this test except the extreme damage, it would be of practical value; and I would like to urge the medical profession of Colorado to adopt this test, along with other methods, as a more routine procedure than is used at the present time. By constant study we will be able in future years to judge its real value and make more accurate diagnosis than we do at the present time in hepatic disturbances.

Council Accepts Optochin

In compliance with the request of the Council on Pharmacy and Chemistry the name "Numoquin" has been changed to "Optochin."

Optochin is used not only in the treatment of pneumonia but also in such conditions as pneumococcic meningitis and pneumococcic serpiginous ulcers. In the treatment of pneumonia it is administered by mouth.

The theory upon which the treatment of pneumonia with Optochin Base is founded has evolved from the results obtained by a large number of investigators, and is outlined as follows:

The maximum bactericidal power of the remedy must be maintained continuously for a definite period—1 to 3 days—employing the minimum quantity of the remedy necessary for the purpose. It was found in practice that, provided Optochin Base is used, and given in doses of 4 grains every 5 hours, day and night, and further, provided the treatment is begun within twenty-four hours, or at least not later than the second day after the onset of the disease, the results are all that could be wished. The fever abates rapidly, the course of the disease is shortened and rendered milder, and the patients experience a sensation of euphoria, while the appetite and general condition improve.

The base is used because, being practically insoluble in water, it is but slowly taken up into the blood circulation. With every dose of Optochin Base about five ounces of milk are given. The milk prevents the too rapid formation of the more soluble Optochin Hydrochloride by the action of the hydrochloric acid secreted and thus assists in maintaining a uniform optimum concentration of the remedy in the blood. No other food or drink is given during the three days' treatment.

ARTIFICIAL INTRAUTERINE INSEMINATION

LYMAN W. MASON, M.D.,
DENVER

Artificial insemination is reported to have been first used in 1322 by the Arabs, in the fertilization of mares. Fish eggs were fertilized artificially about 1700, and in 1780 Spallanzani succeeded with bitches. Such methods are today rather extensively employed in pisciculture and to a lesser extent in the breeding of domestic animals. John Hunter was the first to succeed with a woman, when in 1799 he used the method in the case of a woman whose husband was afflicted with hypospadias. It seems that in this case, the semen was merely introduced back into the vagina. The first recorded intrauterine inseminations were made by J. Marion Sims, who had one success in 1866 in six cases in which it was done. Following this, the method was rather extensively used in Europe, and in the succeeding fifteen or twenty years an extensive literature developed. There was considerable opposition to its use on medical, legal, moral and religious grounds. It was never extensively tried in this country, and the reports available are relatively few.

Search of the American literature reveals reports of fifteen successful inseminations, the bulk of which was reported by Abbett, who used the method in thirty-seven cases, with eleven successes. Of these eleven, seven went to term, there were three abortions before the second month, and one miscarriage in the fifth month. The remaining four reported successes evidently went to term, since nothing to the contrary was found in the reports.

Having had some experience with this interesting subject within the past two years, I desire to report two successful cases of my own, and to discuss the indications for its use and the method of procedure.

It is important to appreciate in the beginning the conditions which one may attempt to overcome by this procedure, and the limit which may prevent the passage of normal of its applicability. The conditions are those spermatazoa through the cervix into the uterus, and the entire and only use for artificial insemination is to place spermatazoa within the uterine cavity. If this is kept in mind, the many other possible causes for sterility in a given case must first be ruled out, the field being narrowed down to relatively few, which may be considered as indications for artificial insemination. Thus the essential problem is one of accurate diagnosis, rather than one of intricate and difficult technique in the procedure itself.

In all sterility studies, the beginning is properly made with the male, since here we have only one factor to determine, viz., the character of the spermatazoa. The cause for the wife's failure to conceive frequently becomes obvious after examination of the semen. In other cases, a proper investigation of the semen is not so simple a matter, as work along this line, most of it done within the past few years, tends abundantly to show. Suffice it to say that only when the husband's semen is found satisfactory, after careful study of the morphology, motility and vitality of the spermatazoa, can he be absolved from responsibility.

If the woman's menstrual history is normal, we assume that the ovaries and uterus are functionally normal. This assumption will be briefly touched upon below. Tubal patency tests should always be made. If the tubes are closed or nearly closed, any procedure such as is being discussed will certainly avail nothing in the former case, and holds the danger, theoretically at least, of starting a tubal pregnancy in the latter.

When the patency of the tubes is demonstrated, attention is directed to the cervix and vagina. Some of the more important faults found here are abnormal positions of the cervix, due usually to retrodisplacements of the uterus, whereby the cervix is directed upward, its end sometimes being in contact with the anterior vaginal wall; a greatly elongated or infantile type of cervix, although the uterus may be of normal size; a funnel shaped vagina, there being more or less obliteration of the fornices, so that the semen drains toward or out of

the introitus; an acutely anteflexed uterus; cervical stenoses of varying degrees and chronic endocervicitis. "Hostile" cervical and vaginal secretions are frequently given as a cause for some cases of sterility, and the hostility is considered to be of a chemical nature. Without going into the reasons in detail, it has seemed to me that the primary barrier in these cases is mechanical, rather than chemical. It is the rule in such cases to find an increased cervical secretion, sometimes quite excessive, characterized by viscidity and usually purulent. I have watched spermatazoa under the microscope become entangled in these masses, and although their efforts at motility continued undiminished, they have not progressed as much as five microns in three hours.

The above list contains those factors which are among the ones frequently found, and is not offered as exhaustive. There are probably others which would be recognized as they presented themselves in cases coming under examination. Mention should be made of the work of Kurzrok and Miller, who seem to have proven the presence in semen of a lysin specific for cervical mucus, and its absence in some semens. If this is true, we have another possible cause for some obscure cases of sterility, and it seems to me, another indication for artificial insemination.

To summarize, it will be seen that all the factors mentioned above may cause a failure of the sperms to gain entrance to the uterus, thence to the tubes. It is only when cases have been selected on this basis, and possibly on one other which I will mention, that success can be hoped for by artificial insemination. Occasionally one finds a semen specimen which is normal in every respect except that the sperms seem to have a lowered vitality, that is, they do not remain progressively motile for a normal length of time. It may be that if they could be "boosted," so to speak, along a considerable part of their journey, they could reach the ovum sufficiently viable to fertilize it. The only case I had in which this was the only trouble found, after two weeks of careful study, moved away before the time set for insemination, so this is merely conjecture.

Huhner, who has done much valuable work on the problem of sterility, has devised a plan whereby he follows the course of the sperms to the uterine fundus. Since their recovery from the uterus is a procedure of considerable delicacy in technique, with several chances for error if not properly done, I feel that if the indications for artificial insemination are arrived at as accurately as may be, it is simpler to do an insemination than to search for the sperms in the uterus. If, after several inseminations have been done, pregnancy does not ensue, there has probably been a mistake in the diagnosis.

The procedure is simple. A small bore cannula is used, with a malleable silver tip to make possible its best conformation to the course of the cervical canal, since it is important to reduce trauma incident to its introduction to a minimum. A 2 c. c. Luer syringe, fitted with an "asepto" type bulb, is attached to the other end. In cases where the cervical canal is fairly straight, I prefer to use a glass cannula, since the amount of material used can be seen.

Up to the present time, the parties have been instructed to have normal intercourse at home, preferably in the morning, and the wife has come to the office immediately afterward, where the insemination was done. The material in the vaginal vault has been used, about 0.5 c. c. being drawn into the cannula, which is then very gently introduced into the uterus, and the contents very gently expelled. It should be borne in mind that the object is not to force the material into the tubes, but to deposit it within the uterine cavity.

I have had no cases as yet in which I felt it was unsafe to inject the material from the vaginal vault, but if there are reasons for not doing so, a condom specimen of semen should be used. Of course, this procedure would not be used at all in the presence of gonorrhea in either party, or even a suspicion of it.

I believe a better way, and the one I shall follow in the future, is to make the insemination at the patient's home. She can then

remain in bed after intercourse and for a short time after the insemination is completed. This will lessen chances for contamination of the semen with the lower vaginal contents, and prevent the semen from being lost in those cases in which the vaginal fornices are shallow. Properly done, this procedure occasions no pain or discomfort whatever.

We have assumed that a woman in good general health, whose menstrual history is entirely normal, has normal ovaries and secretes normal ova. This assumption is probably not correct in all cases. At present we can be certain only when conception occurs, and some failures are probably on this basis, where no gross abnormalities exist.

The question of ovulation time is obviously important in this connection. It has been placed by various authorities at from 8 to 19 days after the beginning of the last menstruation. The majority of opinions fix it somewhere near the middle of the cycle. Loewe, who has worked with the female sex hormone obtained from urine, finds its greatest concentration in the urine about eleven days after the end of the last menstruation, and believes this is coincident with ovulation. However, the fact remains that at present we do not know just when ovulation occurs; whether it occurs at the same time in all women, or whether or not it is constant from cycle to cycle in the same woman.

I have used the 12th day after the end of the last period for the first insemination, and it is interesting that both of the successes occurred after the first insemination. However, if the first trial is unsuccessful, the time may be varied both ways, when repeating the insemination in successive months. It has seemed best not to inseminate more than once each month, through fear of disturbing a possible previous success, but it is possible that it would not.

These cases require patience on the part of both doctor and patient. It should be impressed upon both the wife and husband that a proper study of a sterility problem may require considerable time, and frequently many examinations and tests. Because of the inherent intimate nature of such investigation, it is usually begun with much embarrassment on the part of both wife and husband, and it is well to explain somewhat in detail, at the outset, the reasons for the different steps. If the attitude of the doctor is one of kindness and sympathy, combined with a matter-of-fact scientific discussion of the factors involved, there is soon developed a frank and interested co-operation by wife and husband. There are no more pitiable cases in medicine than those of men and women who intensely desire children, and who do not have them, and when they reach the point of coming to the doctor to try to find out what is wrong, they are in dead earnest. The happiness and gratitude of the patient and her husband in those cases which are attended by success are profound, and there is a satisfaction to the physician that more than compensates for many failures.

Case 1. M. R. Age 22. Married two years. Contraceptives never used. General physical examination negative. Menstrual history entirely negative. The only factor found which was thought might play a part in the sterility was the presence of quite thick and tenacious mucus in the cervical canal; the amount was not excessive, and the mucus was not purulent.

The husband's history was negative, and his semen seemed normal in every respect.

Insemination was done in the office twelve days after the end of the last menstruation. Patient missed her next period, and pregnancy was diagnosed three weeks later. She went through a normal pregnancy until the eighth month, when she suddenly developed signs and symptoms of an acute nephritis, following a slight cold. There were no convulsions. She went into spontaneous labor and died quite suddenly during delivery. The baby was stillborn. Autopsy was not done.

In view of the history of onset of the nephritis in this case, it does not seem probable that her death was due per se to the pregnancy, although it was doubtless a factor.

Case 5. M. J. Age 26. Married six years. Contraceptives never used. In February 1927, the appendix, right ovary and right tube were removed. General physical examination negative Menstrual history negative except for much pain for the first day or two in the right lower quadrant since her operation. Tubal insufflation was done, and the left tube found patent. There was marked anteflexion, and it was necessary to dilate the cervix slightly before the cannula could be introduced. The introduction of the dilator was difficult owing to the marked anteflexion.

The husband's history was negative, and his semen was found normal.

Her last period was July 1st. Insemination was done July 12th. She missed her next period

which would have occurred late in July. Slight bleeding, accompanied by some cramping, occurred in August, both of which subsided with rest in bed and opiates. There has been no recurrence of bleeding, and she is now normally pregnant at between four and five months.

I have used this procedure five times. Failure is ascribed in one case to poor quality of spermatazoa; in fact, it was predicted. The other two cases also were poorly chosen, in that sufficient study was not made either in husband or wife, and insufflation tests were not done. Failure is to be expected in cases not definitely falling within the rather narrow range of those suitable for a trial by this method.

NEWS NOTES

Colorado members of the American College of Physicians are reminded that the Thirteenth Clinical Session of the College will meet in Boston, April 8th to 12th. Programs and details concerning reduced fares, admission, etc., may be secured from the executive secretary, E. R. Loveland, 133-135 Thirty-sixth street, Philadelphia.

Dr. and Mrs. William Finnoff have been spending a few days on the gulf coast in Texas.

Dr. and Mrs. Donald O'Rourke have announced the birth of a son.

Dr. W. A. Jayne spent January in Hawaii. He went from there to Australia. He is expected home within a month.

Dr. and Mrs. David Coover are visiting in southern California. They are expected home soon.

Dr. and Mrs. A. J. Argall have returned from their winter vacation in the South.

Dr. and Mrs. C. H. Darrow have announced the birth of a daughter.

Dr. W. A. Campbell, Sr., of Colorado Springs, passed away about the middle of February. Dr. Campbell was one of the oldest and most revered members of the profession in Colorado Springs. An obituary notice will appear in these columns later.

PROGRESS IN SIGHT

At the last annual meeting of the Colorado State Medical Society the officers were empowered by a unanimous vote of the House of Delegates to employ an executive secretary to act as business manager of the State Association. The officers were authorized to institute this new regime at the earliest date they might deem practical. As yet the time has not arrived. It seemed wise, to some at least, to refer this matter back to the component county societies for their deliberate action. This appeared necessary because the increase of five dollars in dues entailed the amendment of the by-laws of the county organizations. We understand that with the exception of Denver County Society most of the larger county units have made these necessary changes, and that Denver plans to take final action at a business meeting to be held the first Tuesday in March. Assuming that Denver county will act in accord with her accredited delegates and sister organizations, the state officers will have a clear mandate to employ a full time secretary at once.

With the consummation of this effort a new day will dawn for organized medicine in Colorado. Everybody's business will cease to be nobody's business, but will be the sole business of a trained executive. The confusion of counsel will be replaced by the clarity of deliberate judgment. Resolutions and good intentions will have a fighting chance to get beyond the minutes of meetings and become translated into worthy achievement.

CORRESPONDENCE

January 24, 1929.

Honorable Board of Regents,
State University,
Denver, Colorado.

Gentlemen:

There appeared in the December number of "Colorado Medicine," the Journal of the Colorado and Wyoming State Medical societies, an article by Ivan C. Hall, Ph.D., Department of Bacteriology and Public Health, University of Colorado School of Medicine, entitled "A Summary of Two Years Bacteriological Tests of Denver's City Water and the Possible Responsibility of the City Water for Intestinal Diseases in Denver"

This article contains tables of water examinations from May 12, 1926, to July 25, 1928, and reports frequent occurrence of B. Coli in Denver's water and states that "it is obvious from these data that Denver water does not meet the standard of bacteriological purity suggested in the Report of the Advisory Committee on Official Water Standards," and further that "the sanitary quality of the city water supply is still open to adverse criticism."

As we have no knowledge as to how or when these samples were taken, we cannot question the results obtained in each individual instance. The tests purport to show contaminated water in 1926, 1927 and 1928, the last test having been made July 25, 1928.

About the middle of June, 1927, we received a letter from Dr. Hall dated June 10, 1927, stating that "On June 1st samples of water collected at three different places in the Colorado General Hospital again showed the presence of B. Coli, indicating fecal pollution of our water supply." We immediately took samples of water at different points in the hospital and had two examined in our own laboratory and two in outside laboratories. Reports on all four samples were negative with low bacterial count. Dr. Hall's summary of water examinations shows results of tests of samples taken on June 1, 1927, as negative.

We have received no other complaint from the hospital until our attention was called to the above mentioned article in Colorado Medicine. Our own laboratory is constantly making tests of Denver water by the most approved methods of water treatment. A large number of samples are taken at points near the hospital and the results of our examinations do not correspond with those reported by Dr. Hall.

Upon our attention being called to the above mentioned article, our chemist visited the hospital and asked permission to make an inspection of the water equipment. He reports that the meter vault on the line supplying the hospital is not kept clean, that in it there was surface water from the street and that marks on the walls and meter showed that at times a considerable amount of water had been in the vault. He also

reports that he found in the basement in a room used as a plumbing shop two storage tanks, from which he was advised water is frequently pumped into the hospital distribution system, but that no record is kept as to when this is done. The tops of these tanks, which were only partly covered, are on a level with windows, which, it was stated, are used for ventilation. The insides of these tanks, so far as could be seen from the top, were not clean and the boards on top were covered with dust. There is a drainage pipe at the bottom which is not connected with the sewer but opens on to the floor of the shop and employees stated that to their knowledge the tanks had not been cleaned since the building was built. He was advised that a plumber is regulalrly employed, is making frequent changes in the plumbing, putting in new pipe and new fixtures, that the pipe installed has never been sterilized before being used. He also found two hydraulic elevators, in the sump of one of which was a considerable quantity of water from leakage. In this sump he found two dead mice, in advanced state of decomposition.

When our chemist spoke to Dr. Hall about the storage tanks and the elevators he stated he did not know there were any storage tanks and he stated more positively that there were no hydraulic elevators and further that the elevators were all run by electricity.

What other insanitary conditions exist at the hospital we do not know as our inspection was limited to these few matters and was not a thorough inspection of the entire plant. It appears to the Board of Water Commissioners that before making a public report of the examination of water samples taken inside the Colorado State Hospital there should be a thorough inspection of the plant and all possible source of contamination therein eliminated. It would seem further that if tests of Denver water indicated the presence of B. Coli that the information should be at once given to this department.

Denver has the reputation of having the best quality of water of any city in the United States of 100,000 or more inhabitants. We believe that reputation is founded on facts.

This letter is written by direction of the board to call your attention to an apparent insanitary condition at your hospital which should be corrected before further reports are published.

We are sending a copy of this letter to Colorado Medicine with the request that it be given the same publicity as was given the article written by Dr. Hall.

Truly yours,
HIRAM E. HILTS,
Secretary.

BOOK REVIEWS

The Elements of the Science of Nutrition. By Graham Lusk, Ph.D., Sc.D., Professor of Physiology at the Cornell University, Medical College, New York City. Fourth Edition, Reset. Octavo of 844 pages. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $7.00 net.

With the fourth edition of "the Science of Nutrition," Lusk has in many departments, brought our knowledge of the subject up to date, and has presented a treatise which the average medical library cannot well lack.

While not in a position to question, the undersigned has been led through previous reading, to ideas at variance with a number of statements made in the new Lusk. For instance that the major portion of the bulk of the fecal mass is made up of material excreted into the intestine, and that the bacterial content of the average stool carries only from 2 to 13 per cent of bacteria.

White bread is listed as superior to whole wheat, and the pericarp products as a possible menace in the human intestine, and this conclusion seems to be based upon the fact that bad results were obtained during the war, when Germany tried to add ground straw, as a cellulose, to wheat flour.

The multitude of good things in the book, far outbalances the isolated items, which may not appeal on first reading.

W. V. GAGE.

Criteria for the Classification and Diagnosis of Heart Disease. By a Committee, Joseph H. Bainton, M.D., Robert L. Levy, M.D., W. C. Munly, M.D., M.C., U. S. A., Harold E. B. Pardee, M.D., Chairman. Appointed by the Heart Committee of the New York Tuberculosis and Health Association, Inc. Arranged in Conformity with the Nomenclature for Cardiac Diagnosis. Approved by the American Heart Association. Paul B. Hoeber, Inc., New York, 1928. Price, $1.50 net.

This little volume which should be on the desk of every physician treating heart diseases is the official handbook of the American Heart Association on the criteria for cardiac diagnosis. It bases the classification of heart conditions on four factors: etiology, anatomy, physiology and functional capacity. As stated in the preface, the purpose of the book is to standardize the terminology used in describing heart diseases and to this end all the terms used in the classification are simply and accurately defined. The book is brief, practical and serviceable. It was prepared by a committee of specialists in heart disease and the criteria set forth form an extremely practical guide for correct diagnosis. When widely used, this classification similar to the one used by the National Tuberculosis Association, should be of great help to those called upon for reports in compensation and court cases.

MANNIE KATZMAN.

An Introduction to Experimental Pharmacology. By Torald Sollmann, M.D., Professor of Pharmacology and Materia Medica at Western Reserve University, Cleveland, and Paul J. Hanzlik, M.D., Professor of Pharmacology at Stanford University, San Francisco, Calif. Octavo volume of 321 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $4.25 net.

The volume is an adaptation of Sollmann's Laboratory Guide in Pharmacology to a more definite course of exercises. The arrangement is simplified and explanatory discussions are increased.

The authors justly believe in the desirability of having the student view the subject of the action of drugs from different standpoints, hence the division into Chemical Pharmacology and Experimental Pharmacodynamics.

Part I deals with drugs from the chemical and toxicological standpoint; Part II covers the field of pharmacodynamics in which the responses of systems, organs and functions to drugs are emphasized.

Many of the exercises, especially those in Part

II, are arranged as demonstrations to be performed for the class by the staff. In the opinion of the authors this method has much to commend it. It is believed that the results of a properly managed demonstration are less likely to be vitiated by errors of technic than those performed by the student. Where students have had sufficient training in the technic of physiological experiments, it is probable that much gain in accuracy and reliability is secured by the demonstration method of presentation in pharmacology. There are also incidental advantages in demonstrations such as a smaller consumption of animals and economy and flexibility in scheduled time.

The exercises of Part II are grouped by the various organs or functions to better correlate with the students' training in physiology and pathology.

To the general text are appended several sections of general interest. The arrangement and general equipment of the laboratory, chemical equipment, and reagents needed for the exercises in chemical pharmacology and pharmaco-dynamics, are outlined in full to cover the experiments in Parts I and II of the text.

A section on anaesthesia gives a good guide to the choice and use of anaesthetics for animal experiments, whilst further sections cover the methods for the administration of drugs to animals; the doses of drugs for animals; isotonic solutions and a list of dyes and their uses in experimental biology and medicine. A bibliography and list of reference works are appended.

The text is the most complete and usable of any work now available for use in teaching experimental pharmacology, and contains information invaluable to the student in this subject.

RICHARD W. WHITEHEAD.

Partnerships, Combinations and Antagonisms in Disease. By Edward C. B. Ibotson, MD (Lond.) B.S., Fellow Royal Society of Medicine, London. Illustrated. F. A. Davis Company, Philadelphia, 1929. Price, $3.50.

Dr. Ibotson has compressed a vast section of medical literature into a very compact, agreeable and easy reading volume. The layman can read this well printed book with profit and without much puzzlement as to medical terms.

The sections on the antagonism of gout and tuberculosis are perhaps the most suggestive and it is very disappointing that with so noticeable a finger-post an accepted fundamental conception, at least, of its nature has not been evolved. The literature is very voluminous. Dr. Ibotson is inclined to attribute the antagonism to an unknown compound allied to the purin base and existing in the blood plasma of the gouty.

EDWARD S. WIARD.

Preventive Medicine. By Mark F. Boyd, M.D., C.P.H., Member of Regular Field Staff, International Health Division of Rockefeller Foundation; formerly Professor of Bacteriology and Preventive Medicine in the Medical Department of the University of Texas. Third Edition, Revised. Octavo volume of 475 pages with 151 illustrations. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $4.50 net.

The third and revised edition of this book is one of the best in the field at this time when Preventive Medicine and Public Health are beginning to receive their deserved attention. The author makes no claim to originality in the material presented, but has given the salient facts in a concise and very readable manner. The chapters on Sources of Infection, Discrimination of Infective Agents, Contact Transmission and General Measures of Disease Control are handled without waste of words and in a way that facilitates ready reference. The chapters on Excreta Disposal and Water Purification have been revised and brought up to date. In the chapters on Disinfection the author might lay more stress on the futility of employing fumigants in terminal disinfection. He simply says that it "is a dying practice." The chapter on Public Health is well treated, and somewhat more fully than in the two preceding editions. On the whole, the book can be highly recommended, not only to health officers, but it is valuable as a textbook for students in medicine and public health workers. Dr. Boyd, with his experience in the U. S. Public Health Service and on the field staff of the International Health Division of the Rockefeller Foundation, is unusually well qualified to write with authority on the subject of Preventive Medicine.

SEVERANCE BURRAGE.

WOMAN'S AUXILIARY NOTES

The regular annual meeting for the election of officers of the Denver County Woman's Auxiliary was held January 20th, at the Nurses Home of the Denver General Hospital. A revision to the by-laws was voted upon, which changed the annual meeting to May, making the county year correspond to the state year.

A vote was taken which carried the present officers and dues over until that time.

On February 18th the Denver Auxiliary gave a benefit card party for philanthropic purposes in the Daniels and Fisher's tea room. The following members of the executive board acted as hostesses: Mrs. T. Mitchell Burns, Mrs. George W. Miel, Mrs. Arthur J. Markley, Mrs. George P. Lingenfelter, Mrs. H. G. Corper, Mrs. L. W. Mason,, Mrs. C. H. Morian, Mrs. Hermann Stein, Mrs. Harry Brown, Mrs. Constantine Kemper, Mrs. C. N. Meader, Mrs. F. J. Krohn, Mrs. Kenneth Allen, Mrs. George Johnson, Mrs. Rudolph Arndt, Mrs. Robert F. Maul, Mrs. W. Bernard Yegge. There were seventy tables sold.

NOTICE

The spread of planter warts and Epidermophytosis (ringworm of the foot) in the Denver public schools, where there are swimming pools and showers, has made it necessary to inspect all the feet of the boys and girls in junior and senior high schools, and exclude from swimming and showers all those showing signs of either condition. These children have been referred to their private physician for treatment. Co-operation on the part of the private physician in this matter will greatly aid in the elimination of these conditions.

"What? You want me to pay $35 for my room in this hotel?" asked an angry guest of the hotel clerk. "That is outrageous."

"But this is on the American plan; your meals are included in that price," replied the clerk.

"Well, but I didn't eat a meal here."

"But they were right here for you; that was your fault."

"Then you owe me $35."

"What for, may I ask?"

"For kissing my wife."

"But I didn't kiss your wife, I tell you."

"Well, that isn't my fault; she was right there for you."

WYOMING MEDICINE

President, F. A. Mills, M.D., Powell — First Vice President, C. W. Jeffrey, Rawlins
President-Elect, J. L. Linn, M.D., Lander
Secretary, Earl Whedon, M.D., Sheridan — Treasurer, Evald Olson, M.D., Lovell
Delegate to the A. M. A., Geo. P. Johnston, M.D., Cheyenne — Alternate, J. H. Holland, Evanston
Councilor, H. L. Harvey, Casper
Member of Medical Defense, Earl Whedon, M.D., Sheridan
Fred Horton, M.D., New Castle — George L. Strader, M.D., Cheyenne

EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

NEWS NOTES AND COMMENT

THE NEWTON CHILD WELFARE BILL

House Bill 14070, introduced May 28, 1928, by Congressman Newton and referred to the Committee on Interstate and Foreign Commerce in the House of Representatives at Washington, D. C., was considered by that committee recently, but so far we have not seen the report issued. This bill would annually appropriate $1,000,000.00 from its passage and continue said appropriation until the crack of doom unless otherwise repealed.

The administration of this annual appropriation would be controlled by the Children's Bureau and not by the U. S. Public Health Service. When the Sheppard Towner Act was given a new lease on life it was done with the distinct understanding that all operation would cease in 1929.

And now what have we before us? Something worse. A bill which would forever inflict on us whether we want it or not a Child Welfare Bureau, created to give jobs to a lot of dehydrated and useless old maids to run over this country of ours and inquire into the sexual relations of their more fortunate sisters.

Of all the slop this is the worst mess yet dished up and we doctors are asked to swallow it and pretend we like it.

One death and two others found in very poor condition in Sheridan among the little babies followed the last visit of these administering angels who, disregarding the expressed orders of the attending physician, advised and persuaded the mothers to place these little ones on whole cow's milk in place of the carefully directed diet given by the attending physician, who has spent years in the study of infant feeding.

We would suggest that an amendment be offered that there be appropriated several more millions of dollars to buy tombstones which these welfare workers would carry with them and leave in communities in which they work and thus further aid the cause of Infant Welfare.

This is not our individual editorial opinion, but has the backing of the American Medical Association and most of the doctors of the United States. The women's auxiliaries in many states, such as Illinois, etc., are doing all they can to defeat the Newton bill and our own Wyoming Auxiliary ladies are being asked to each write or wire Senators Warren and Kendrick and Congressman Winter to help defeat bill 14070.

Let all the Wyoming doctors also write or wire our disapproval of this freak and dangerous bill. E. W.

Child Distress in England's Mining Areas

This extent of distress among the families of the 330,000 out-of-work miners in Great Britain can be imagined when it is realized that most of them have no income besides the unemployment insurance, and that the amount of this for a typical family of father, mother, and five children under 14 years of age is little more than $8 a week. One of the mining communities reported an infant mortality rate of 103 per 1,000 live births, the general rate for England and Wales being 70. School attendance has been seriously affected because so many have no shoes, and some schools report that their routine medical examinations found nearly half the children to be undernourished. To meet this emergency the British government has made large appropriations for the transfer of workers from the coal fields to other parts of the country and for their training in other kinds of work.—Children's Bureau.

SPINAL PUNCTURE

The following abstract was printed in the Bulletin of the Medical Society of the District of Columbia in the February issue and was written by a former Sheridan boy, Dr. Charles R. L. Halley, who was a son of the late Dr. Charles C. Halley of Sheridan. The young doctor has spent two or three years after graduating from Johns Hopkins working in the Out-patient Clinic.

We are also publishing the discussions following this paper, believing that the subject will be of special interest inasmuch as he calls attention to several important matters connected with spinal puncture.

Dr. Charles R. L. Halley: "Spinal Puncture." The doctor had made a detailed study of lumbar puncture and its result at the Out-patient Clinic at Johns Hopkins Hospital. From his experience there and with his private cases he would give as contraindications—(1) brain tumor, (2) local infection of the skin in the region of the place for puncture, (3) ankylosis of the spinous vertebrae. Spinal puncture is indicated where there is any evidence pointing to encephalitis or poliomyelitis; also in trichinosis the diagnosis has been made by finding the trichina in the spinal fluid. As a therapeutic procedure it is indicated in (1) cases of brain trauma; (2) in applying certain modes of treatment such as the Swift-Ellis treatment which the doctor stated was of considerable utility in the treatment of early optic atrophy accompanying syphilis; (3) in cases of hemorrhage.

The doctor cited histories of six patients showing that the lumbar puncture either proved or disproved the original impression as to the disease suffered by the patient. In cases of latent syphilis and in patients where the Wassermann reaction was necessary, the finding of positive spinal fluid gave evidence of great diagnostic value.

Repeated removal of bloody spinal fluid, which is often found in extensive fractures of the skull, will ameliorate the patient's symptoms. On a work sheet that was used in Johns Hopkins Hospital on patients on whom lumbar puncture was done in the dispensary, such items as headache, dizziness, sensation of pressure, lassitude, pain in the back, and hours spent in bed after lumbar puncture, were noted following the puncture Routinely these patients were advised to stay in bed forty-eight hours after lumbar puncture. On account of lack of space and facilities in the series reported, the patients sat upright on a stool for the procedure. Thirty-seven per cent showed no symptoms; 55 per cent showed no, or slight, disagreeable symptoms after puncture.

The cases were further grouped as to sex and it was found that the incidence of undesirable symptoms was somewhat more prevalent in the female than in the male.

In patients on whom a puncture was done for the first time, 29 per cent showed no reaction. Forty-nine per cent showed none, or only slight reaction. On patients on whom lumbar puncture was done for the second or more times, 68 per cent showed no reaction. The causes for undesirable symptoms were reviewed by the doctor. Whether it was due to seepage of fluid after a puncture, to a change in the colloids of the blood, or perhaps reflex or shock, were unsolved questions. The doctor could hardly subscribe to the theory that it was due to seepage. He did not believe that one could ever assure a patient that there would not be any reaction.

The following participated in the discussion of Dr. Halley's paper:

Dr. Walter Freeman: Lumbar puncture was a desirable procedure but it must be recognized that it was frequently necessary to over-persuade an individual to have it done. He thought the pain production resulted from: (1) penetration of the skin; (2) in puncturing the periosteum; and (3) puncturing of the dura. Concerning the latter he thought that a blunt pointed needle would probably be less painful. Subcutaneous injections of sterile water into the skin acted well as an aesthetic. A cisterna puncture was possibly easier than a lumbar puncture and frequently of greater utility. He would stress the making of spinal fluid pressure readings.

Dr. H. H. Leffler cited a patient who had insufficient treatment for syphilis two years ago, due to lack of co-operation on the part of the patient. Both eyes showed a marked Argyll-Robertson's pupil, with provocative Wassermann tests negative. Spinal puncture had been refused because of the patient's fear. In closing he stressed the value of estimation of total albumins in the spinal fluid as a factor in the early diagnosis of cerebral syphilis.

Dr. Wm. H. Hough: Twenty years ago he wrote a paper on the subject of Lumbar Puncture. He was very much impressed later with what Dr. Osler said at a meeting of the Medical Society of the District of Columbia to the effect that "too much green fruit is brought to the market." Up to 1918 he had performed 17,000 lumbar punctures. He was absolutely opposed to any puncture that was done with the patient not in a reclining position. He cited a patient on whom a lumbar puncture was done recently in a doctor's office with the patient sitting up. This patient suffered for fourteen days afterwards with violent headaches. Dr. Hough was called in but he was unable to assist in relieving the pain which undoubtedly had its origin in the puncture being done in the office with the patient in an upright position. He cited the case of another patient on whom a puncture was performed at Johns Hopkins Hospital, the patient being allowed to go home over the road in an automobile which produced very undesirable symptoms.

Dr. Thomas Cajigas: Very few cases of headache developed in the series in which spinal puncture was performed with the patient lying down in bed with the patient remaining in bed thereafter for at least twenty-four hours. He cited a series of punctures performed in the dispensary of George Washington University Hospital, the patients lying down for one or two hours and then going home, with instructions to go to bed for twenty-four hours or longer, with the result that slightly over one-third of these patients developed reactions.

Dr. Halley agreed, in closing, that patients should preferably be lying down when punctures are performed and it was only through the exigencies of the situation that the puncture was done in the sitting position in the Out-patient Department of Johns Hopkins Clinic. The desired goal for attainment was to cause spinal punctures to be as innocuous as venipuncture.

"A child with a tuberculous hip might be made a chronic invalid if light alone is given; whereas, if he is placed in proper orthopedic rest, with good food, fresh air and proper light treatment, usually he can be cured, sometimes with full function of the joint restored."

NEWS ITEMS

NORTHWESTERN WYOMING MEDICAL SOCIETY

President Dr. F. A. Mills and wife and Treasurer Dr. Evald Olson and wife attended the St. Vincent's Hospital banquet at Billings recently and drove home after the banquet was over through snowdrifts for three and a quarter hours.

Dr. W. W. Horsley of Lovell had planned to attend this banquet but due to the arrival of a son failed to make the trip. The Wyoming doctors extend their congratulations to Mrs. Horsley, but Dr. W. W. is so pleased that he doesn't need anything in the line of congratulations. The only thing that he needs is the opening of the duck season.

SHERIDAN COUNTY MEDICAL SOCIETY

Dr. F. A. Dolan, one of the old-time practitioners in this county, is on a vacation which is the first one that he has taken for many a year. The last news we received from the doctor was that he was in New Orleans and expected to be away attending clinics and having good time for a month or so.

NATRONA COUNTY

The Natrona County Medical Society at a recent meeting has asked the program committee to arrange for clinics on Monday and Tuesday, June 24th and 25th, when the Wyoming State Medical Society holds its annual meeting at Casper. The program this year will be made up mostly of Wyoming men and plenty of time will be given for the discussion of all papers read. It is planned that there will be but four papers presented by out of the state men.

The malpractice suit, McShane vs. Dr. J. C. Kamp, which has been dragging along in the courts and never brought to trial, was dismissed by the judge and thus the case is ended. This is another of those miserable cases that any doctor is constantly threatened with in which there never was any honest grounds for its institution. We congratulate Dr. Kamp on the dismissal of this miserable case.

UINTA COUNTY

Dr. J. H. Holland spent Christmas and New Years in Los Angeles and returned January 3, 1929, leaving his wife and daughter for a several months' visit.

Dr. C. H. Solier, superintendent of the Wyoming State Insane Hospital, spent January 22nd and 23rd in Cheyenne, consulting with the legislative committee in regard to the needs of his institution during the coming two years.

Evanston is free of all contagious diseases during the month of January.

Dr. J. H. Holland, mayor of Evanston, spent January 11th and 12th in Cheyenne at the meeting of the mayors of the state. Said meeting was called by Mayor Riner of Cheyenne to discuss matters to come before the legislature of interest to the several towns.

On account of the severe snow storms during the last two weeks of January, Evanston is isolated except by rail. The Lincoln highway is blocked both east and west and it is almost impossible to keep the city streets open for automobiles. This is the worst winter for both cold and snow experienced in this end of the state for a good many years.

ALBANY COUNTY

Dr. Frank Winne Brown of Laramie died very suddenly of heart attack January 24th. Dr. Brown was a native of Scottsville, N. Y., and a graduate of the University of Michigan. He was a captain in the medical corps, stationed at Fort Sill, Okla., during the World War, and afterward practiced medicine in Colorado Springs, Colo. He joined the medical staff of the Veterans' Bureau in Denver and came from there to Laramie five years ago.

Dr. Brown was a member of the Presbyterian Church, and he and his family attended that church in Laramie. He also was a member of the Lions' Club, the American Legion and the American Medical Association, and one of the founders of the Jesters, and at the time of his death, its president.

Few men who have come to Laramie have in so short a time made so many friends as did Dr. Brown. He was not only skillful in his profession, but he was a lover of his kind. He was especially interested in the University and its student body.

The doctor confined his practice to eye, ear, nose and throat work. The members of the State Medical Society extend to Mrs. Brown and Mary Jane their sympathy in this, their time of trouble.

Dr. J. L. Linn of Lander is at present in New York City doing post-graduate work.

Gorgas Memorial to Hold Health Essay Contest

The Gorgas Memorial Institute has announced a nation-wide essay contest among high school students. This is "an effort to reach the younger generation with proper and useful health information." The subject selected is "The Life and Achievements of William Crawford Gorgas and Their Relation to Our Health." The contest is open to students in the junior and senior classes of high schools. The winner in each high school will be given a Gorgas Medallion and his essay will be sent to the state judges who will select the essay they consider best. This will be forwarded to Washington where the final selection will be made. The state prize is $20.00 and the national prize $500, plus $250 travel allowance to Washington to receive the prize for the first choice and $150 for the second choice.—Health News.

Diabetes is a wasting of the flesh and limbs into urine from a cause similar to dropsy. The patient never ceasing to make water and the discharge is as incessant as a sluice let off. The patient does not survive long for the marasmus is rapid and death speedy. The thirst is ungovernable, the copious potations are more than equaled by the profuse urinary discharge, for more urine flows away. . . How, indeed, could the making of water be stopped, or what sense of modesty is paramount to pain? . . . The epithet diabetes has been assigned from the disorder being something like passing of water by a syphon. . . . The disease is caused by some of the acute diseases. It is suspected that the pernicious influences of those diseases which attack the bladder and kidneys contain in themselves the cause of this disorder.—Aretaeaus of Cappadocia.

Colorado Medicine

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EDITORIAL NOTES AND COMMENT

SENSITIZATION

Sensitization is the term used to designate a condition in which the individual reacts to ordinary substances, like food, pollen, danders, powders, in an unusual manner. To date there is not even a reasonable theory as to the reason one individual will have eczema, asthma, hay fever, or urticaria from one or many substances and a brother, sister, father, mother or friend will not be similarly affected. The few facts known about sensitization and treatment are the following—namely:

That sensitization in general, but not for specific substances, is transmitted through the female side of the family in 80 per cent of the cases.

That certain types of eczema, hay fever, asthma and urticaria may be caused by the same substance or substances.

That sensitization to specific substances varies inversely with the age—e. g., a child with asthma or eczema is far more likely to be sensitive to a specific food, pollen, or dander than an adult who has acquired some one of these diseases late in life. The adult condition is more likely to be a direct result of infection, or some other disturbance.

That 70 per cent of hay fever sufferers have asthma some time during their hay fever.

That hay fever properly treated averages 75 per cent relief, which is about the same per cent relief as the operations for hernia afford.

That, by any one of several methods an individual who is sensitive to a protein, pollen or dander may be tested and the exact protein or pollen determined.

That unless all the offending substances to which one is sensitive are used in treatment, the result may be unsatisfactory.

That a sufferer from hay fever is usually sensitive to some foods which augment the hay fever.

That certain types of eczema may come from pollen sensitization, as well as foods.

That hay fever, asthma, or urticaria are often a product of sensitization, plus infection, or the reverse.

That permanent relief in hay fever may result from two or three years of treatment.

That the patient should be completely desensitized before the offending pollen is in the air.

The above summarizes roughly the known facts relative to sensitization.

T. D. C.

MENINGOCOCCUS SEPTICAEMIA

It is well known that many pathogenic micro-organisms produce quite different symptoms in various individuals. This is particularly true of the pyogenic cocci. The reaction which occurs between the living tissue and the invading organism may produce a picture we will recognize as a definite disease entity, from the constant repetition of the same subjective and objective symptoms. If however the reaction occurs so quickly that local manifestations cannot take place, the symptoms are apt to be indefinite and confusing. This picture is often seen in the severe infections.

A series of four cases of meningococcus infection which occurred recently in one family brought out emphatically the confusion which can arise in seeking a diagnosis under such circumstances. Three children died on successive days after an illness in each case of not over eighteen hours. The first symptom seemed to be abdominal discomfort, then vomiting, followed in a few hours by a generalized purpuric eruption and death. Autopsies in every case revealed nothing characteristic except the purpuric discoloration of the serous membranes. The spinal fluid was clear. The last child was seen long enough before death to permit some laboratory tests to be made. In the antemortem blood smears Gram negative diplococci were found, but they were not found in post-mortem smears. A blood culture of this last child was positive for the meningococcus.

A fourth child came down two days following the death of the third, with typical symptoms of meningeal irritation, cloudy spinal fluid which showed the meningococcus. He recovered after treatment with the specific antiserum. A fifth child was given antimeningococcus serum, although symptomless, and it remained well. Another recent instance in one family resulted in the death of the father, with a purpuric eruption; the young daughter came down at the same time with typical meningococcic meningitis.

The meningococcus is very prone to apparently disappear from the body fluids. This peculiarity may account for many cases of this infection not being diagnosed by the laboratory, except by exclusion. Meningococcus infections are considered by many authorities to be primarily a septicaemia, which localizes as a meningitis, if time permits it. A virulent infection terminates in death before meningeal symptoms can develop.

Cases of meningococcis septicaemia are not rare according to current medical literature. Many medical officers saw such cases during the World War.

The differential diagnosis of isolated cases may be of little value except for the protection of others, because of the sudden onset and extremely short duration of symptoms. Treatment requires the immediate administration of antimeningococcic serum intravenously, to combat the septicaemia.

E. R. M.

Technique of the Sun Bath

After preliminary hardening and observation, if the patient's condition warrants it, the sun bath is begun. This is given with the patient in the recumbent position and not sooner than one hour, or better, two hours after the meal, and should be discontinued at least one-half hour to one hour before the meal.

The first day, the feet are exposed for five minutes, then covered ten or fifteen minutes and another exposure for five minutes is given; covered again for ten, and exposed again for five. This is done front and back.

The second day, the feet are exposed for ten minutes and the knees for five; covered and uncovered three times front and back.

The third day, the feet are exposed fifteen minutes, the knees for ten minutes and the thighs for five; covered and uncovered three times, front and back.

The fourth day, five minutes' exposure is added to the feet, knees and thighs, and the abdomen is given five minutes.

The fifth day, the previously exposed parts are given an additional five minutes' exposure and the chest is given five for the first time.

Each day, a five-minute increase is given until the whole body is able to tolerate three or four hours daily of sun cure without burning. The progressive exposure is carried on to ascertain the patient's tolerance and to obtain pigmentation without burning. If, for any reason, the sun cure has to be interrupted during the preliminary exposure, the time of the next bath should be reduced to an earlier stage, the stage depending on the degree of interference.

Great care should be taken during the early exposures to avoid burning and to watch at all times for unfavorable symptoms, such as a rapid pulse, rise of temperature, headache, nausea, fatigue, dizziness, or other constitutional disturbance, which might indicate an intolerance to the sun or an exacerbation of the disease.

The baths are always given the same way without regard to the location of the lesion. The lesions should be kept covered until the patient has been able to take one or two hours of cure without any reaction. When the lesion is exposed, it should be started at five minutes the first day, with five minute increases each day thereafter.

In the case of feeble patients or of those who do not tan well, or in cases where there is considerable fever, it may be necessary to reduce the time of daily exposure and to give only two or three minute increases daily. If any dermatitis or burning occurs, the treatment should be discontinued for two or three days. Sometimes, it is necessary to wait for a week or ten days.—Heliotherapy in Tuberculosis, C. L. Hyde, M.D.; Ohio State Med. Jour., Dec. 1, 1925.

ERRATA

In March number title of first editorial should read "The Ward Burdick Medal." Line 13 in body of editorial should appear as line 17.

THE COUNTY SOCIETY—A PROGRESSIVE INSTITUTION*

JAMES J. WARING, M. D.
DENVER

The Medical Society of the City and County of Denver is now well over fifty years old, a mature, solidly established organization with a roster of 570 members, with amazingly splendid library resources and with a substantial library endowment fund.

I invite you to review with me for a few minutes the activities of this Society, to consider what it has done, what it is doing and what it might now well do. As near as I can make out, the County Society seriously threatens to evolve into nothing more than a forum for scientific discussion. The average member discharges his obligations to the society, to the medical profession and to the community by reading a paper occasionally and by attending half a dozen meetings in the scientific discussion of which he may but usually does not take part.

In this age of preventive medicine and ever broadening social responsibilities of men and organizations only a few of the members have taken an active interest individually in public health affairs and until the past few years officially the society has held aloof and has done little or nothing "in the advancement of all subjects connected with the healing art and public health."

Examine then with me, first, the major if not the only activity of the society, its scientific meeting, the influences which threaten to spoil it and the forces which may ennoble it, after which we will consider the county society in its public relations.

During the past year the average attendance at meetings has been ninety-three. The chief reasons for this relatively small attendance may be grouped in two categories: (1) compulsory hospital staff meetings and subsidiary society meetings and (2) a monotonous scientific program, by which I mean a program of the same general type repeated over and over again.

It is possible that instruction at the medical school, that Colorado General Hospital staff meetings, that faculty and committee meetings may so exhaust the time and energy of many formerly active members of our county society, may so satisfy the natural demand for scientific stimulation that the interest of these men in the county society will wane. If the medical school and the university hospitals are not to flourish at the expense of the county society, the whole hearted interest of the faculty, especially the heads of the clinical departments, in the conduct of the affairs of the society must continue unabated.

Better attendance at meetings will promote society unity and since the responsibilities of hospital staff meetings can not be evaded—better attendance can be secured only by a frequently and cleverly varied program of high scientific standard. Furthermore this program should be published in the Bulletin with unfailing regularity at least two weeks in advance. This is especially desirable when the society is to hear a visiting speaker.

Relief from the monotony of the readings of scientific papers should be secured in as many ways as an ingenious program committee can devise.

The important suggestions on the subject of post-graduate instruction made by Dr. Edward Jackson in a recent notable address before this society should be brought to the attention of the incoming directors. Discussion at length is not possible here, but it ought to be feasible to carry out his ideas and to develop a group of lectures to be given by special invitation before this society.

The opportunity regularly offered at every meeting for the exhibition of patients should be utilized more frequently.

In days gone by many patients with unusual conditions, transported from the Denver General Hospital to the assembly room, have added greatly to the interest of the meetings. Why not make this a regular

*President's address delivered before the Denver City and County Medical Society, Jan. 8, 1929.

custom and why cannot the Colorado General Hospital also acquire the habit? During the past year the staffs of the Denver General Hospital, St. Luke's Hospital, St. Joseph's Hospital and the Children's Hospital have put on excellent programs before the county society. This plan of a joint meeting of the staff of a hospital with the county society could well be amplified to include other hospitals, among them the Fitzsimons Hospital, and properly organized and systematically carried out should somewhat reduce the number of evening medical meetings, should raise the standard of our scientific programs and finally should counteract not a little the disorganizing influence of compulsory hospital staff meetings.

Whereas our isolated position geographically speaking throws us over much upon our own resources, county societies, both east and west of us, are grouped much more favorably for visits from distinguished colleagues in nearby cities. Whenever the Society for the Control of Cancer, the Colorado Society for Mental Hygiene, the Clinical and Pathological Society or any other subsidiary society has a distinguished visitor the visit should be so timed that the county society may also profit. A little thoughtfulness about this matter will greatly increase the attractiveness of our programs.

At the present time no organized method exists for securing visiting speakers. If the plan for a full time executive secretary for the State Medical Society goes through it would be very easy for this person to keep in touch with all medical conventions west of us to the end that important guests from the east at these meetings might be extended invitations to stop off in Colorado on their way to the coast or upon their return. A careful canvas also should be made of the most desirable men resident west of us, who should be extended on suitable occasions invitations to address our society.

To improve the programs, to stimulate the interest of this county society officially and its members individually in the public health movement I have secured the sum of $2,000 which is now in hand and the promise of an additional $1,000 to defray the cost of securing a distinguished worker in this field to give annually for the next three years a series of three lectures under the joint auspices of the county society and the medical department of the University of Colorado. The provisions of this gift are:

1. The subject of the lectures must be within the field of preventive medicine.

2. The initial lecture of a series must be given on the evening of a regular meeting of the society, in the assembly room of the county society, the others will follow on consecutive evenings.

3. The choice of lecturer is left to a committee composed of the president of this society, the dean of the medical school and the professor of medicine. Announcement of the first series of lectures will be given shortly.

Now, just a word about the society in its social aspect.

During the past year on half a dozen different occasions all the officers of the society, and all the members of the standing committees and the trustees, and one or two other representatitve men have been invited to meet with the president at dinner and have spent the entire evening in a well-planned informal discussion of matters of considerable concern to the society. Aside from the promotion of good fellowship, the business discussion always frank, always friendly, has been most helpful. The conviction grows that this periodic meeting in a social way of all those men in whom the administration of the affairs of the society is temporarily vested promotes frankness and much good feeling, the leaven of which subtly spreads throughout the rank and file of the society there to do its noble work.

This reminds me that last year we withdrew our plans for a spring frolic to join with the auxiliary at dinner, a very pleasant occasion worthy of repetition annually or better, perhaps, biennially, in which case it might be alternated with a spring frolic of the county society at one of the country clubs.

I am sure you will agree with me that occasional contact with our colleagues in

our moments of relaxation will contribute much towards unity and harmony in the profession.

I turn now to a consideration of the county society in its relation to the community.

The prestige of the county society is founded upon the reputations of its individual members, but it is also greatly influenced by the official acts and derelictions of the society. Consider for a moment registration of births and reporting of cases of venereal disease and cases of tuberculosis.

The responsibility for the delay in the admission of the state of Colorado into the United States registration area rests largely upon those Denver physicians who fail to make proper returns of births. Dr. Jaffa tells me that at the end of every year by personal solicitation he is able to secure several hundred over-due returns and he adds "this takes a great deal of time which could be used for other (and the presumption is justified, more important) purposes." Parenthesis is mine. I remind you that the statutes provide for the registration of births and a penalty for failure to report, a penalty, by the way, which has never been enforced by the State Board of Health. I also remind you that unless a certain high standard is maintained the state will be dropped from the registration area.

This is not the time or place to summarize the arguments pro and con the reporting of venereal disease and tuberculosis, I merely state that they are not being reported and that under the statutes they are reportable.

Until convinced of the wisdom and the necessity of reporting these diseases, the members of this society will not do so. I suggest that early in the year a meeting be devoted to a discussion of these three important subjects—birth registration and venereal disease and tuberculosis reporting and that the secretary of the State Board of Health and the manager of health and charity be invited to attend the meeting and to take part in the discussion.

I referred above to derelictions of the society, by this I also mean the failure of the society officially to initiate important projects in the field of public health or to co-operate with other organizations in this field.

Let some older and well informed members of this society review for you the rare occasions when this society has officially asserted itself in the interest of the public health.

That scarcely a doctor was present at the last state conference of social workers and that the series of splendid lectures by Dr. Esther Richards of Johns Hopkins, given under the auspices of the recently organized Mental Hygiene Society, was attended by only a half dozen doctors, neuro-psychiatrists, most of them, may indicate only the absorption of the busy practitioner in the immediate engagements of house visits or office consultations, but it is indeed significant that for years only a scant handful of doctors in this community have actively interested themselves in important public health activities and that officially the county society has rarely manifested the slightest interest.

It is well known that during the past few years serious misunderstandings have arisen between social service workers and the members of the organized medical profession.

The report in 1927 of the joint committee of the New York State Medical Society and the State Charities Aid Association contains much of the greatest importance and immediately pertinent to the subject of public relations. This committee, originally planned by prominent members of the New York State Medical Society, the State Charities Aid Association committee on Tuberculosis and Public Health and the State Health Department, made so specific and such important recommendations both to county medical societies and to voluntary health agencies that I deem it incumbent to bring them to your attention.

Voluntary Health Agencies Were Urged;

1. To invite the County Medical Society to delegate a certain number of its members to become members ex-officio of their boards of directors or executive committees.

2. To lay its annual program of activities

before the County Medical Society for information and suggestions.

3. To appoint a special committee to confer with a similar special committee of the county society on matters of mutual interest.

4. To report to the parent body of the voluntary agency any matter as to which an accord has not been reached with the County Medical Society, in the hope that through conference between the parent body of the voluntary health agency and the County Medical Society any such matter may be negotiated and adjusted to the mutual satisfaction of all concerned.

5. To conduct at least one open meeting a year to which the members of the County Medical Society are especially invited.

On the other hand, medical societies were urged:

1. To accept the invitation from voluntary health agencies to appoint certain of its members to serve ex-officio on boards of directotrs or executive agencies.

2. To study and to criticize constructively the program of activities submitted annually by the voluntary agency; if the program is approved to make a statement to that effect and otherwise to support the program.

3. To appoint a special committee on public relations to confer from time to time with similar committees from the voluntary health agencies.

4. To report to the State Medical Society any matter on which accord has not been reached with the voluntary health agency in the hope that through conference between the State Medical Society and the parent body of the voluntary health agency any such matter may be adjusted to the mutual satisfaction of all concerned.

I am glad to record here that the Visiting Nurses' Association already has invited the president of this society to serve ex-officio on the executive committee, also the recently organized Colorado Society for Mental Hygiene has added to its by-laws a clause authorizing its president to invite the president of the Colorado State Medical Society to appoint annually three members to serve ex-officio on its board of directors.

These invitations should be interpreted as official recognition by the voluntary health agency that the medical profession, through its organized body, is the natural place to look for leadership. A stern obligation rests upon the county society officially to respond promptly to this appeal by making the appointments requested and a further heavy responsibility rests upon the men appointed to take their duties in no perfunctory or careless manner, but to enter earnestly into the deliberations which they are invited to attend.

As a matter of fact, we are being asked only to give some attention to that part of our business which for one reason or another we have hitherto neglected. Either we run our own business or somebody else will run it for us. We can take our choice, but the issue is clear.

Through the Denver Public Health Council, on which, since its inception four years ago, this society has had two official representatives, the ground has already been prepared for the co-ordination outlined in these recommendations.

I believe every health agency represented on the council looks to the county society for authority and leadership and is willing, even anxious, to work in harmony with it.

It is interesting to note that of the 115 members of the fifteen committees of the health council engaged recently in making a health appraisal of the city of Denver according to the standards set forth by the American Public Health Association, seventy-four were members of this society and two doctors on each committee, or thirty in all, were official representatives of the Medical Society of the City and County of Denver. This appraisal is in the press now and when published in an issue of 1,000 copies will carry on the cover a statement to the effect that this study was carried ont by the Denver Public Health Council, the City Health Department, the County Medical Society and the health committee of the Community Chest.

Along the same line is the Denver jail

survey initiated by the Denver Bar Association and on which the County Medical Society is officially represented by a strong committee.

The joint dinner with the Bar Association so pleasantly fresh in our memories might become an annual affair and has already furnished a worthy project in the field of public health for combined efforts of the associations. It is hoped that the joint active committees of these two organizations, backed by the undivided influence of the members and the force of an aroused public opinion will effect radical but well considered changes in our state methods of handling crime.

By the method recommended by the joint committee of the New York State Medical Society and the State Charities Association closer co-operation could be effected between the Denver Tuberculosis Society, the Colorado State Tuberculosis Association, the Children's Hospital Out-Patient Department and other organizations in addition to the Visiting Nurses' Association.

Since I believe that the cause of public health will be best served by this arrangement and that the prestige of the county society will necessarily be greatly enhanced I urge that the machinery to bring this about in a systematic fashion be set in motion without delay.

Medical Information Bureau

I now come to a subject which has absorbed much time and thought of officers of both the county society and the State Medical Society; namely, the subject of public education on health matters.

The committee on public health education appointed to censor the public utterances of the members of the county society and acting under the instructions of the society has refused to approve personal signature of medical articles in the lay press but has approved the publication of these articles signed "Approved by the Committee on Public Health Education of the Medical Society of the City and County of Denver." The demand by the press that medical articles of popular nature have a personal signature indicates that the prestige of the individual is greater than that of the society. Important as it is that the influence and authority of the more distinguished members of our society should be capitalized primarily for the benefit of the public health and secondarily, for the benefit of the medical profession at large, and though I feel strongly that our policies should not be controlled by the unworthy motives of jealousy and personal animosity, nevertheless I am persuaded that personal signature **at this time** is unwise and I furthermore feel sure that if we have a mind to, the prestige and authority of the society may be elevated to a point where except in the rarest instances it transcends that of the individual. At such time the clamor of public and press for the unrestricted use of physicians' names will be largely quieted. The society's committee has taken its work seriously and has done its work consistently and well, but something else is needed. I suggest a medical information bureau modeled after that recently established jointly by the New York Academy of Medicine and the Medical Society of the County of New York. This bureau is designed to facilitate the dissemination of authentic information on medical and public health matters, to defeat quackery and to promote a better understanding between the public and organized medicine. The bureau is supervised by a committee representing the academy and the county society and is served by a body of over 100 consultants competent to give expert opinion on a variety of questions relating to their specialties—"the full resources in judgment, knowledge and experience of the medical profession in New York 'on tap' to aid its purpose. The bureau's first obligation is to serve the press of the city."

The education committee of the Toledo Academy of Medicine has been divided into a publication bureau and a speaker's bureau, each with a chairman in charge and a director over both. The report of this education committee is most remarkable. In 1927 a daily medical essay including a "question box," was written and published in the "Toledo Times" under the caption:

'Said by Toledo Doctors.' Much else was done along the same line which time does not here permit description. I will add this, the Toledo Academy of Medicine syndicates and sells its stuff and exchanges articles with other county societies.

Can something of the same sort be done here? I believe it can. A similar bureau might be organized under the joint auspices of this county society, the Denver Public Health Council and the faculty of the medical department of the State University. It should include a select group of consultants recruited not only from this society, but also from the ranks of the pre-clinical faculty at the school and certain members of the faculty of the University of Denver should be added. To set up the machinery of this bureau may appear formidable, but I believe it to be feasible and necessary.

Let me summarize my recommendations:

I. To increase the interest of the members in the county society—to vitalize the organization—I recommend

1. The more frequent exhibition of patients and the full use of the clinical material at the two general hospitals.

2. The continued systematic use of substitute or joint hospital staff programs.

3. The systematic search for distinguished visitors.

4. The application of Dr. Edward Jackson's plan of post-graduate instruction.

5. The continuation of the president's informal round table meetings.

6. A spring frolic of the society at one of the country clubs, alternated biennially with a dinner meeting with the auxiliary.

II. In the field of public relations: I recommend:

1. That the county society accept promptly the invitation from voluntary health agencies to appoint certain members to serve ex-officio, on their boards of directors or executive committees.

2. That the society study and criticize the programs of activities annually submitted by the voluntary agencies, and if these programs are approved, to make a statement to that effect and otherwise to support the programs.

3. That the society appoint a special committee on public relations to confer from time to time with similar committees from the voluntary health agencies.

4. That the county society annually appoint a committee to meet with a similar committee of the Denver Bar Association to arrange a dinner meeting and to plan a co-operative effort as the need may arise in the field of public health.

5. That the county society appoint a committee to confer with representatives from the Denver Public Health Council and with the dean and the faculty of the medical school on the advisability and the feasibility of the establishment and maintenance of a medical information bureau.

In conclusion I compress my theme into two sentences:

The glory of our American institutions resides in their sustained progressiveness. With generous spirit, high courage and with noble impulse let us see to it that the county society fulfills its destiny as a progressive institution.

DIAGNOSTIC TUBERCULOSIS CLINICS IN COLORADO*

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COLORADO SPRINGS

In 1923 Dr. Henry Sewell of Denver reported the result of an investigation conducted by a committee of the Denver Sanatorium Association with the co-operation of the Colorado State Board of Health. The result of this investigation showed that between the years of 1908 and 1920 Colorado had an average death rate from tuberculosis of 208.9 per 100,000. During the same period the death rate for the registration area, including Colorado, averaged 147.5 per 100,000. The report further showed that the death rate in cases developing outside of Colorado was 150.5 per 100,000; the death rate in cases developing

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inside of Colorado was 30.8 per 100,000. While the death rate in cases where the place of development was unknown was 27.5 per 100,000. Although the report showed that the death rate from tuberculosis developed in our own state was low, it nevertheless showed that it was sufficiently high to demand attention and to warrant provision for cases developing here.

The Colorado Tuberculosis Association again in co-operation with the State Board of Health, tabulated the deaths from tuberculosis in Colorado from 1921 to 1925 inclusive. During that time there were reported 8,169 deaths. Of these, 3,370 or 57 per cent had been in Colorado one year or more. Of 2,278 the length of time in Colorado was not given. During this period at least 3,370 residents of Colorado died of tuberculosis. These summaries are presented to show in a statistical manner two features of the tuberculosis problem in our state. First, that we have a certain per cent of indigenous tuberculosis, and secondly, that a large number of our citizens are dying from tuberculosis each year. This problem has always existed and I believe has always been inadequately met.

Encouraged by reports from other states where chest clinics have been found successful, the Colorado Tuberculosis Association between November, 1926, and July, 1928, held eleven chest clinics in ten counties of the state. The counties were Bent, Weld, Morgan, Jefferson, Fremont, Adams, Prowers, Chaffee, Larimer and Las Animas. Owing to lack of funds the medical examinations were made entirely by volunteer workers. Thirty-five days of service were given by physicians who had special experience in the diagnosis and treatment of chest conditions. Thirty-three local physicians attended and assisted in the clinics. A total of 668 cases were examined. We have briefly analyzed the result of 400 of those examinations, considering 268 as incomplete. Of the 400 there were 40, or 10 per cent, diagnosed as having active tuberculosis, and needing sanatorium treatment. Of the 400 only 13 had had sanatorium treatment at any time. In 66 cases the diagnosis was suspended and the patients were classed as suspicious only. In the remaining 294 cases no evidence of active tuberculosis could be found. It is also worthy of mention that of the total 668 cases, 410, or 61 per cent, were under 16 years of age and 280 of these were living in intimate contact with open tuberculosis cases. As a further detail of the examination it is interesting to note that 14 per cent of the patients were referred by private physicians, 30 per cent were referred by the nurses of the Tuberculosis Association, while preparing for the clinics, 8 per cent were referred by teachers, the Red Cross, Veterans' Bureau, etc., referred 6 per cent, newspaper publicity caused 26 per cent to apply for examination, while traveling clinics and other sources referred the remainder.

In all cases examined a full report was sent to the physician in charge, if the patient was under medical care. If no physician was in charge of the case the patients were urged to immediately place themselves under such care.

It is to be noted that centers where large numbers of tuberculous patients are known to congregate in Colorado were not visited by the clinic. It is also obvious by no means all tuberculous residents of the area visited were examined.

Dr. Armstrong of Framingham has said "the next step in tuberculosis work is the first step; namely, to find the cases." The casts are here; they are citizens of Colorado. Inadequately cared for at present, and in many instances acting as center of infection and adding to our problem. State care appears to be the only solution.

For assistance to the victims of the earthquake which wrecked the city of Cumana, Venezuela, $5,000 was sent to the Venezuelan Red Cross through the Department of State by the American Red Cross in January. The United States Army also sent cots and tents from the Panama Department on the appeal of the Venezuelan government. An army transport was loaded with all available tents and 6,000 cots, and a group of officers and assistants also sailed to supervise the issuance of the equipment.

RABIES IN COLORADO*

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Rabies is a disease primarily of dogs, and for this reason would apparently be of more interest to the veterinarian. However, any of the warm blooded animals are susceptible to the specific virus, and may develop the disease. There is perhaps no disease which is more dreaded by the human being, from the point of superstitition, also from the knowledge that treatment is of no avail. For these reasons, with others, this disease has perhaps been more thoroughly studied by students of medicine, veterinarians and scientists than any other, and the knowledge which they have gained while not complete, is very comprehensive.

Rabies is spread almost all together by the bite of a rabid animal, and the virus must gain entrance into or beneath the skin to render transmission possible. Only a few animals are prone to attack and bite, and in this country it is usually the dog.

These animals are ill with an acute infectious disease which has a definite cause, and which can be transmitted. It does not arise spontaneously, as is the belief of many of the laity. Because the uncontrolled rabid dog recognizes no boundaries, rabies has been encountered in every state in the Union, is now widespread and apparently on the increase.

The incubation period of rabies is perhaps the most variable of all the infectious diseases. In man and dogs this period has been known to vary from 10 to 285 days, and possibly longer. The virus travels by the nerve trunks to the central nervous system and must reach that tissue and multiply before symptoms are produced. Therefore the location of inoculation, amount of virus transferred and possibly the virulence all influence the period of incubation.

With the onset of symptoms the result is death, for rabies is practically 100 per cent fatal, once they have set in. A few cases of recovery in dogs are recorded[1], but they are questioned because of a possible mistake in diagnosis. It is stated that roughly only 30 per cent of all animals bitten and not treated, develop rabies. In man approximately 15 per cent of those bitten and not protected manifest the disease after a variable incubation period.

The first record of rabies in Colorado appears to be the human case reported by Axtell[2] in 1899. This report was based entirely on clinical symptoms as Negri bodies were not discovered until 1903, and animal inoculations were not made. Causes of mortality were not made a matter of record in this state until 1906. Since that time ten deaths from rabies have been reported in human beings, with three as a maximum for any one year. No human cases have been reported since 1922, when there were two deaths. These cases were evenly divided between urban and rural districts throughout the state. The fact that no human cases have developed recently appears to be contrary to conditions expected, since rabies has apparently increased among the dogs and other animals of the state, especially in the past two years.

It is unfortunate that statistics are not available to verify the opinions of veterinarians over the state that the disease is on the increase. Statements made by various members of the Colorado Veterinary Association at their last meeting in May at Fort Collins, were emphatically to that effect. But these verbal statements are of little value in combating the erroneous and misleading articles published by ignorant or cult blind individuals in our daily newspapers. In Denver largely through the cooperation of the veterinarians with the Health Department approximate figures are available.

The following data obtained from Drs. Jaffa and Pratt[3] only covers proven cases[4] in animals, from Feb. 1, 1927, to date. The present epidemic apparently started in Den-

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ver at that time:

Dogs	33
Horses	3
Bull	1
Cow	1
Goat	1
Cat	2
	41
To Jan. 1, 1928 (Animals)	26

These figures do not include many cases known but not traceable, also cases not reported until after the death and disposal of the animal. Consequently it is felt that the actual number of cases would considerably exceed the total as given. Many other cases are known to have occurred in the territory adjacent to the limits of Denver, but these were not reported to the State Board of Health. Other sections of the state were also delinquent. While these figures only cover a small area a similar condition probably prevails in other parts of our commonwealth. For the domestic dog will be found to approximately parallel the human population in ratio of numbers.

It would appear needless to describe the clinical picture of rabies as seen in the dog, as many articles on this subject have appeared in numerous papers, both popular and scientific. But circumstances which have arisen during the present epidemic seem to show that the condition is still not recognized.

Briefly, two types of this disease exist. The dumb type, which has constituted the large majority of cases seen in the last two years, is characterized by a change in the disposition of the animal, alteration of the bark to a mournful howl, loss of appetite, progressive weakness of the skeletal muscles, often with a constant dropping of the lower jaw, loss of ability to use the hind legs, and inability to swallow. The animal becomes stupid, seeks a dark place, grows weaker and weaker, and eventually dies in one to four days.

The furious type is characterized by irritability, irresponsibility, and tendency to attack anything in self-defense, real or imaginary, regardless of injury to themselves. This stage may last 24-72 hours and it is during this period that the disease is spread. It can be considered as a delirium which is present in every case, but may be suppressed by a rapidly progressing paralysis. These animals may live four to eight days, but the terminal picture is similar to the dumb type.

Any dog at this time which shows a change in disposition, loss of appetite, weakness, difficulty in swallowing or any acute illness, should be shut up for observation. The hands should not be put in the animal's mouth unless rubber gloves are worn. Personal instances are known of owners attempting to remove supposedly foreign bodies from the throat of their dog due to the "bone in the throat" appearance.

Any treatment must be prophylactic to be effective, as nothing can be done once symptoms have started. Prophylactic treatment can be divided into local, and the production of an active immunity. Rosenau[5] in a recent article has emphatically stressed the value of thorough cauterization with **fuming or concentrated nitric acid** of all animal bites, or other wounds which have been smeared with suspected virus. This acid is very effective, while other substances, as phenol, lunar caustic, and even the actual cautery have been shown to be of little value.

Immunization by the Pasteur treatment or one of its modifications is so well known as to need little comment. It should be remembered that the development of active immunity requires time. Therefore Pasteur treatment should always be started without delay. Fortunately this can be done now since the treatment no longer requires hospitalization but can be administered by any physician with safety, and the anti-rabic virus is readily obtainable. In actual practice both procedures should be carried out in every human case bitten by or inoculated with virus from a rabid animal, or an animal which cannot be traced. Observation of a suspicious dog for ten days will disclose whether it has rabies. A rabid dog will die within that time. Further proof will depend on the laboratory search for Negri bodies, and animal inoculation as the last resort.

Control of rabies is both the easiest and most difficult problem to solve. It has been shown in numerous countries that rabies can be eradicated promptly by very simple and humane methods. In the United States the police power belongs to each separate state and is jealously guarded. Matters of public health nature are left to the state authorities for administration, and the federal authorities only act in an advisory capacity, unless the problem becomes interstate.

Different states vary markedly in their ability to cope with the problem of rabies control, and their best efforts can be handicapped by neighboring states that are not as diligent in the enforcement of regulation. Within the state itself constant care is necessary as Rice[6] has shown during the present epidemic in Indiana.

Colorado has in its statutes, laws and regulations[7] which are very similar to those of other states. If these laws and regulations were enforced rabies would be very quickly under control, and would be eradicated, provided new cases were not introduced over the border. The regulations of the Colorado State Board of Health require the report of all cases of rabies in animals by any person who may have such knowledge, to the local health officer. They also require the muzzling of dogs while on the street, the detention of suspicious dogs, and the annual immunization of dogs. Provision is also made for the examination by the State Bacteriologist for the presence of Negri bodies in the brain of all suspicious dogs that have died, or have been killed.

Provision is not made for the homeless, stray or pariah dog which acts as a permanent source of infection. Successful eradication cannot come if these animals are allowed to roam at will. Their control or elimination is both humane and of economical importance, as stock growers can affirm, who have lost valuable animals, after the visit of one of these roaming rabid dogs.

Summary

Rabies among animals is on the increase in Colorado.

No human cases have been reported in the state during the present epidemic.

The condition is a national problem and will require the co-operation of all the state boards of health for proper control.

The laws and regulations of the Colorado State Board of Health appear ample to cope with the problem except for the pariah dog, which should be eradicated.

Quarantine measures, muzzling and elimination of the stray dog would quickly wipe out the disease. The vaccination of dogs is difficult to carry out, of relative value, and should be considered secondary in importance.

REFERENCES

[1]Phillips, J. M.; Berry, F.; Snook, J. H.: Recovery from Rabies, with Reports of Cases of Treatment, Paralysis and of Recovery of Animals Apparently Rabid, Jour. Infect. Dis. 29:97 (July), 1921.

[2]Axtell, E. R.: Report of a Case of Hydrophobia, Colorado M. J., 5:456 (Dec.), 1899.

[3]Jaffa, B. B., M.D., Manager of Health and Charities, City and County of Denver.

Pratt, L. R., D. V. S., Veterinarian for the City and County of Denver.

[4]Mugrage, E. R.: Occurrence of Rabies in Denver, Colorado M. J., 25:210 (June), 1928.

[5]Rosenau, M. J.: Rabies. The Treatment of Wounds and Prevention of the Disease. New Eng. Jour. of Med., 198:787 (May 31), 1928.

[6]Rice, T. B.: Ten Years of Rabies in Indiana, Jr. Indiana State Med. Assn., 21:185 (May 15), 1928.

[7]Colo. State Board of Health, Laws and Regulations, 1927, pp. 42, 43, 71, 118.

A rag-and-bone man was trudging wearily along a road carrying a bag of old iron, lead pipes and brass. Suddenly a woman at a fifth-floor window managed to attract his attention. "Hi! come up here!" The man climbed slowly up the five flights of stairs with his heavy bag. When at last, puffing and blowing, he got to the fifth floor, the woman exclaimed: "Say, mister, won't you put my little Tommy in your bag if he isn't a good boy?"

Adele: "Alice worships her husband, doesn't she?"

Mildred: "Well, she places burnt offerings before him three times a day."—Hookless Scoop.

Doctor: "Have you taken ever precaution to prevent spread of contagion in the family?"

Rastus: "Abs-lutely, doctah; we've eben bought a sanitary cup an' we all drink from it!"

Professor: "Now, gentlemen, the gas in this cylinder is most deadly poisonous. Can you tell me what steps should be taken if it escaped?"

Student: "Yes, sir. Long ones."

First Traveler: "I recently saw a machine that knows when one tells a lie."

Second Traveler: "That's nothing—I married one."

"Spring is the time for love."

"Well, it's not so bad during the other seasons, either."—Missouri Outlaw.

SUNLIGHT AND LIFE*

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The Chinese proverb which is based upon the premise that those who know do not speak and those who speak do not know always comes to my mind whenever solar radiations and their effects on living matter are under discussion.

The assumption that sun-bathing may have been practiced prior to the beginning of the Christian Era does not alter the fact that any real knowledge of the clinical application of light dates from the establishment of the Finsen Institute in 1896 and that thirty-two years is a short time in which to develop a science of sun treatment. When we stop to reflect upon the wide range of the solar spectrum, the variations in the wave length, frequency and energy content of the different regions with the consequent diversified nature of their effects together with the innumerable problems involved in the development of apparatus and technic for standardized measurements, we need offer no apology for the empirical basis of heliotherapy at the present time. Rather, we may congratulate ourselves upon the progress that has been made in a field which presents as many angles as those which are an integral part of any comprehensive study of electromagnetic radiation.

I do not wish to give the impression that our subject has been neglected by scientific investigators, because a considerable number of unrelated general studies have been published. There are, however, very few, if any, instances of record in which the clinician, physiologist, physicist and biochemist have joined forces in an attempt to carry out a comprehensive and co-ordinated program of fundamental research.

In the transition of heliotherapy from an empirical to a scientific basis what, then, are some of the factors which must receive attention?

Meteorological data are obviously necessary and graphic records of barometric pressure, atmospheric temperature, humidity and wind velocity may play a rôle of considerable clinical importance. Studies at the Mayo Clinic on the "Relation of Arthritic Pain to Weather" have shown some extremely interesting correlations and clearly indicate the range of possibilities in connection with the effects of these natural forces on clinical phenomena. Any program of fundamental research in the reactions of life to sunlight should therefore have, as a background, the basic meteorological records which have just been noted.

The rate of evaporation from the surfaces of the body should also be determined.

Most of the generalizations that are current regarding the reactions of life to sunlight are based on data which are clearly insufficient. One reason for this is that apparatus for standardized measurements has not been readily available and another is that complex structures, both normal and pathological, have been studied in the absence of adequate preliminary knowledge concerning the reactions of the elementary forms of plant and animal life.

Since a beam of sunlight is made up of different elements it follows that our analyses must be qualitative as well as quantitative. Then, too, light coming as sky radiation, as well as direct radiation, must be investigated and each region of the spectrum must be studied separately.

Kimball and Hand have pointed out the insurmountable difficulties encountered in measuring the ultraviolet region of the spectrum by bleaching solutions, and scientific opinion is generally agreed that the total radiant energy of the sun as well as that of the various spectral subdivisions should be measured and specified in absolute units if our data are to be of real scientific value.

Without entering into a detailed technical description of the instruments required for standardized measurements, let me say that the Pettit calibrated solar radiometer will record the maximum of solar energy at the

*Delivered before the fifty-eighth annual meeting of the Colorado State Medical Society, Colorado Springs, September 13, 1928.

green line and the intensity of the vital ultraviolet at 3150° A. u. in terms of watts per 100 Angstroms per square meter. Attention for the moment is sharply focussed on the ultraviolet region of the spectrum by reason of the interlocking relation between the direct effects of such rays on living things and their energizing action on vitaminic substances. This statement, however, should not be construed as denying the importance of other regions of the spectrum. In fact, the highly specialized action of several regions of the solar spectrum in relation to green plants suggests the necessity of an investigation of the influence of visible rays on living matter in the expectation that effects of importance may be uncovered.

The second major item of equipment in the category of measuring devices is an automatic sky recorder. The essential part of this instrument is a photo-electric cell of sodium in quartz, which, when exposed to sun and sky, sets electrons in motion across a vacuum, the rate being recorded by a galvanometer. This electrostatic method of recording the electrostatic effect of all radiations, including the ultraviolet, thus affords a check upon the radiometer and an extension of the field of observation. It is held that these methods may be depended upon to furnish data superior in intrinsic value and reliability to those which might be secured by direct photographic or photochemical means.

Most important of all, however, is apparatus for special studies of the continuous bands of the solar spectrum. This consists of a modification of the Foucault Siderostat with a stellite disc and quartz train which make it possible to produce dispersion of a beam of sunlight and maintain the various components of the spectrum in a given position in a specially designed room, thereby enabling the investigator to study separately the action of each of the spectral subdivisions. The monochromatic light thus obtained opens visions of tests of the effects of polarized light to the experimenter. How far the somewhat ambitious plans implied above may be extended into this hazy field is problematical. It would appear that some courage is needed at the present time to take seriously the idea that polarized light may exert any specialized action on organisms, or on chemical processes.

Our requirements having been fulfilled from the standpoint of equipment for standardized measurements in terms of absolute units—(and this of course implies the provision of adequate laboratory facilities for their installation and use),—let us pass to the consideration of the general nature of the investigations that should be carried on, since this will be an important factor in determining the qualifications that our research personnel should have.

Just as the need for certain basic meteorological data was found to exist, so must we acquire certain fundamental information about sunlight and sky radiation. The intensity of solar radiations is known to be exceedingly variable; the variations being momentary, daily, seasonal and geographic. Moreover, the amount of radiation which reaches the earth's surface is dependent upon every change in atmospheric transparency from whatever cause. Radiometric data covering all such variations must therefore be regularly and readily available and the necessary basic energy-curves established.

The reactions of life to sunlight—at least in those aspects which are of interest to the clinician—are expressions of photochemical change and their diversity and complexity call for the study of the action of radiation on the most elementary forms of life in order that the fundamental biophysical principles which are involved may be discovered and understood. Once the underlying processes are known, the clinical application of this knowledge on a scientific basis will come within the range of possibilities. In this connection, however, it must be borne in mind that the animal skin is an entirely different organ from the human skin and it has not been definitely determined to what extent the results of animal studies are directly applicable to the human organism. Furthermore, as pointed out by Laurens and others, the difference in the reaction of nor-

mal and pathological cells must receive due consideration.

For many years plant physiologists have placed great emphasis on the rôle of radiation in the biologic processes of plant structures. Plant cells may be studied with relative facility and a program of fundamental research should include comprehensive investigations of the reactions of these structures to different regions of the solar spectrum. MacDougal of the Carnegie Institution has invented a colloidal cell which carries on the metabolic functions of a living plant cell and offers an excellent means of investigating some of the effects of radiation. It is, in our opinion, upon the most elementary forms of plant and animal life that we must concentrate our efforts in order to discover the biophysical principles which are involved in photochemical reactions.

It is clear that the clinical application of biophysical principles should be based upon their correct interpretation in terms of physiologic reactions. In heliotherapy, as in other forms of therapy, there has been altogether too much "putting the cart before the horse," and eventually, irradiations should only be used in the treatment of those pathological states in which the known physiologic reactions to a single spectral subdivision, any combination of them, or to the spectrum as a whole, present well defined indications. This means that such biophysical principles as may be discovered in the study of the reactions of the elementary forms of plant and animal life must be translated into terms of physiologic reactions through work with more complex structures, including man. Brian O'Brien has published an outline of such a program of research which is exceedingly complete. Many of the physiological reactions, however, may be studied more advantageously in man than in animals and it is believed that the nature of the investigations is such as to make a certain amount of direct research of this character entirely feasible.

The problems involved in the study of the effects of solar radiations on living matter are so varied that the investigator whose activities are limited to a single field and whose researches are not properly co-ordinated with the work of others is obviously laboring under a considerable disadvantage. The contributions which the physicist, biochemist and physiologist have to make are clearly indicated and it would seem that the clinician should also be included since the placing of heliotherapy upon a scientific basis is one of the ends in view. It was with these considerations in mind that the Research Institute of the Desert Sanatorium was conceived. It was believed that by the provision of adequate facilities and equipment so that the physicist, biochemist, physiologist and clinician could work together on a comprehensive and co-ordinated program of fundamental research in the reactions of life to sunlight more rapid advances in the acquisition of scientific knowledge would result which, in turn, would hasten the liberation of heliotherapy from many of its remaining bonds of empiricism.

DISCUSSION

A. M. Forster, Colorado Springs: I want to express my appreciation of the work that Dr. Wyatt and his associates are initiating. I had the honor to be on the committee of the American Sanitarium Association, which is charged with stimulating interest in research in heliotherapy. As you know, heretofore we have left this work to the commercial organizations that are engaged in building these different types of lamps, and there has been practically no work of a real scientific nature attempted by any organizations who are charged with this tuberculosis work, and as a consequence of this work that Dr. Wyatt and his associates and others are doing, we really feel that we have an opportunity now for some advancement in the guidance that the condition needs. As you know, Dr. Pryor of Pueblo for years was interested in heliotherapy, and he and his associates developed a magnificent institution outside of Pueblo, and there also work of a scientific nature has been going on. When we out here recognize the difficulties that those men have in the investigation of natural heliotherapy, and when we know that they themselves admit that we have these marvelous opportunities out here with the constant sunlight we have, it does seem particularly fitting that somewhere in this region we now have initiated this real scientific study of heliotherapy.

These few pictures I have to show, of course, illustrate the situation only from the clinical side.

(Moving picture.)

THYROID DIAGNOSIS*

J. E. STRUTHERS, M.D., M.Sc., F.A.C.S.
DENVER

In treating of thyroid diagnosis in the limited time allowed, it is impossible to cover all its diseases. I have confined myself to its four common diseases which includes over ninety per cent of the conditions as seen by the general practitioner. If one is conversant with these four diseases, he can with assurance advise his patient the proper procedure to follow in regard to their goiter. I refer to

1. The Diffuse Colloid Goiter
2. The Adenomatous or nodular goiter without hyperthyroidism
3. The Adenomatous or nodular goiter with hyperthyroidism
4. Exophthalmic Goiter.

The last two types are spoken of by some as toxic goiter, by others as goiters with thyrotoxicosis. Both are undoubtedly correct, but I believe indefinite and prefer adenomatous or nodular goiter with hyperthyroidism with this type of gland, accepting exophthalmic goiter as meaning an hyper active gland. I make this distinction because of the marked difference in the preoperative preparation and surgical management of these two types of active thyroids.

To examine a patient for a goiter it is important to use a proper method in palpation. To palpate the thyroid, grasp the right lobe with the left hand, thumb in front and the fingers sinking in on the posterior surface by approaching from behind the posterior border of the sterno-cleido mastoid muscle; by this method the anterior-posterior diameter can be quite accurately estimated and by moving the hand up and down, the length of the gland can be determined. The examination is facilitated by pressure of the other hand on the opposite side, pushing the gland and trachea towards the side being palpated. Small nodules or masses may be detected sometimes on compression indicating that small adenomas are probably present. If an adenoma be present well down in the thoracic strait it may frequently be sufficiently elevated from the strait by instructing the patient to swallow, so that the thumb and fingers may be slipped in beneath the tumor.

Colloid Goiter:

A typical, diffuse, colloid enlargement usually appears first about puberty, and in many instances disappears spontaneously during the third decade, and earlier if properly treated. On inspection we see a smooth, symmetrical enlargement of both lateral lobes and isthmus, just noticeable or so large as to change the contour of the neck. Palpation confirms inspection. These goiters frequently have an active and a passive stage. During the active stage when the gland enlarges, during menstruation and pregnancy in woman, and following unusual stress in men, thrills and bruit are usually present in the superior thyroid vessels, while during the passive stage they cannot be identified. No general or constitutional symptoms of hyperthyroidism are produced. The basal metabolic rate is within normal limits and more frequently approaches the lower than upper limits of normal, at times in fact, a dry skin and other symptoms may suggest a mild hypothyroid state. You may have a patient with many nervous symptoms, a rapid heart, weakness and lack of stamina, a course tremor, irritable, whose thyroid you have examined frequently and so centered his attention on the gland. Lack of assurance on your part as to the presence or absence of hyperthyroidism accentuate these nervouse symptoms and tend to convert the patient into a chronic neurasthenic. In these patients with large diffuse colloid goiters, globus hystericus is not unusual, while actual compression with narrowing of the trachea resulting in true obstructive dyspnoea is rare. Here again these patients need assurance.

A Few Words About Basal Metabolism:

A patient with a diffuse colloid goiter and the symptoms mentioned above, may superficially resemble exophthalmic goiter patients. If a basal metabolic rate is run it may be normal or even well above normal. If normal, we can almost of a certainty rule out exophthal-

*Read before The Arkansas Valley Medical Association, Pueblo, Colo., March 2, 1929.

mic goiter. If elevated, especially after a few days rest in bed, and on repeated examinations, the diagnosis of exophthalmic goiter is strengthened. But if the first reading is up, say plus thirty or plus thirty-five and each subsequent reading over the course of a week is down, you can almost of a certainty rule out exophthalmic goiter, for rarely is this condition found in these patients. On the other hand, due to fright or irritation, it is not infrequently met with in the neurasthenic, the irritable, unstable and retrospective individual, the patient with disordered heart action, the psychoneurotic and in chronic nervous exhaustion. Therefore, single determinations should not be relied upon as a positive indication of hyperthyroidism.

Treatment:

The treatment of these diffuse colloid goiters is medical and is directed toward the reduction of the size of the gland. Occasionally you may have a colloid goiter containing adenomatous masses which is often best treated by surgery. In the treatment we can use iodine in any convenient form, dessicated thyroid or thyroxin. The latter two are more reliable, more rapid and safer; safer because they avoid the danger of initiating hyperthyroidism if adenomatous tissue is also present. For the past year I have used an enteric coated tablet and have found that the patients require smaller dosage at wider intervals. For example, two of my patients who were taking three grains of dessicated thyroid daily, get along very nicely on one three-grain enteric coated tablet every third day.

Adenomatous or Nodular Goiter Without Hyperthyroidism:

Most of these goiters evidently begin fairly early in life. Although the patient may believe it developed toward middle life, careful questioning will elicit the fact that they had a goiter when fifteen or twenty years old. Then with or without treatment, it apparently disappeared, until the present goiter manifested itself. On inspection we now see an unsymmetrical enlargement of the thyroid gland. On palpation one or more nodular masses, varying in size, are felt. Frequently when the nodular masses are multiple, an individual nodular mass may be felt on either side of the neck in which the individual adenomas cannot be identified. According to the degenerative changes which these tumors have undergone, they may feel cystic, soft, hard, or even stone-like to the palpating fingers. Sometimes the latter may even be mistaken for malignancy, because of the stone-like feel and rapid growth, both symptoms of malignancy. A large adenomatous goiter, because of its size and position, may produce pressure symptoms by its interference with surrounding structures. For this reason we frequently hear it spoken of as a "mechanical goiter." Pressure on the trachea causes difficulty in breathing, markedly aggravated if the patient contracts a cold. Smaller adenomas if behind the trachea, may cause pressure on the esophagus or pharynx, and difficulty in swallowing may be marked, or pressure may be on the larynx or recurrent laryngeal nerves causing a disturbance in the voice. Very often change in voice is one of the early symptoms of malignancy of the thyroid. Hemorrhage into a cystic adenoma will sometimes give the sudden enlargement, stone-like feel and symptoms of malignancy. When nerve conduction is interfered with, laryngeal examination may show the vocal cords completely or partially paralyzed with little or no alteration in the voice. For this reason, all my thyroid patients have a routine laryngeal examination before surgery and before discharge after surgery.

Sometimes when deep seated adenomas are present, in spite of the pressure symptoms mentioned, the patient may get along for a considerable time. Finally, when they present themselves for examination, it will be observed that the circulation is markedly interfered with, the superficial vessels over the lower neck and chest are markedly dilated, compensating for the deep pressure. This is often observed in substernal and intrathoracic goiters.

These simple adenomatous or nodular goiters cause none of the general or constitutional symptoms of hyperthyroidism and except where there is an independent cardiac lesion or an actual respiratory obstruction from the goiter, the heart is anatomically and functionally normal. I believe it safe to state that an

adenomatous goiter seldom, if ever, becomes toxic in persons under thirty. The few cases that manifest toxic symptoms before that age, are probably due to the indiscriminate administration of iodine in some form.

The operative removal of adenomatous growths in the absence of symptoms of hyperthyroidism is indicated for cosmetic reasons or symptoms of pressure. After the age of thirty as a prophylactic against hyperthyroidism, for twenty-three per cent of these goiters become toxic, and after forty as a prophylactic against malignancy, for this is the one type of goiter in which cancer develops.

Adenomatous or Nodular Goiter With Hyperthyroidism:

This is comparatively rare in patients under thirty. Seventy-eight per cent of the patients are over forty and fifty per cent over fifty. These patients will have had their goiter on an average of sixteen years before the onset of the symptoms of hyperthyroidism. Inspection and palpation of the goiter are as found in the non-toxic adenomatous thyroid. There are no local, distinguishing, physical characteristics to indicate the presence or absence of hyperthyroidism. In general, we can say that a single discrete adenoma is more apt to produce hyperthyroidism, while a large, soft and cystic feeling colloid type of adenomatous mass usually does not.

These patients may give a history about as follows: For the past several years he has had the sensation of fullness of the neck, possibly with definite pressure when the head was in certain positions; recently some regurgitation when swallowing with occasional attacks of globus hystericus. For the past two or three years, a gradual change in the general health. For some time he has noticed that he felt like working, but when making the effort was absolutely unable to maintain for any period of time, either physical or mental effort. He is getting nervous, irritable and very easily excited. Although he has a good appetite, there is a constant loss of weight and general strength. After slight exertion such as going up stairs, he will notice rapid, hard heart action and dyspnoea; this is soon followed by spells of palpitation, even when at rest. He perspires very easily and his skin is always warm. Has a tremor and enjoys cold weather. The basal metabolic rate, if taken, would be increased. Now if we see our patient at this stage we are quite fortunate. As these symptoms come on gradually and insidiously, possibly with periods of partial or complete remission, he cannot tell definitely when they commenced. But with the attack following this remission all these symptoms were markedly accentuated with possibly an associated enlargement of the thyroid gland. Now there is evidence of cardiac insufficiency—a dilated heart with edema of the legs and ankles, and a heart which had been quite regular though fast, is now arrhymic with a pulse deficit. Cardiac murmurs are not uncommon, especially a systolic murmur which may be sharply localized or widely distributed but usually heard best over the pulmonic area, apparently functional, for it disappears following thyroidectomy. Naturally the Basal Metabolic Rate is up.

These cases are surgical. In the early cases with little cardiac damage, surgery need be delayed but a short time—a few days rest in bed sufficing. In the advanced cases we should delay until maximum cardiac improvement has been obtained, as evidenced by decrease in pulse rate, disappearance in pulse deficit, decrease in the size of the heart and the disappearance of edema, ascitis if previously present and dyspnoea.

There is a group of borderline cases in whom adenomatous tissue can be felt in the gland, and whose clinical history and symptoms are consistent with, but not positively diagnostic of hyperthyroidism, but who on repeated Basal Metabolic examinations, give rates of, or above, plus fifteen, in which you can safely diagnose hyperthyroidism for over thirty per cent of these early cases, give rates of between plus ten and plus twenty per cent.

Exophthalmic Goiter:

We think of a symmetrical enlargement of the thyroid gland as typical of exophthalmic goiter. This is not always so, for about one-third of the patients with this form of goiter have an adenomatous mass or masses present, resulting in an unsymmetrical enlargement of the gland. Their presence renders

the differential diagnosis between exophthalmic goiter and toxic adenomatous goiter more difficult and necessitates the taking of a careful history. About sixty per cent of the cases of exophthalmic goiter occur before the age of forty, most between thirty and forty. The onset of the disease is as a rule, quite sudden and often can be definitely dated as following some unusual exertion or emotion. We do have a remittent form in which the onset is gradual, the patient not being aware of its presence, the severe symptoms not developing until the second six months of the disease. For some little time these patients may have felt pepped up. They may describe themselves as having a "feeling of nervousness;" are restless, impatient, irritable and cranky and lose the power of concentration and continued effort. Small annoyances disturb them out of proportion to their importance. These patients have an inereased physical response to excitement and emotional disturbances and become so weak and shaky from excitement or from being startled, that they are almost helpless. They ery and get angry about nothing at all. Tremor is often disturbing, especially when writing or eating and may cause them to spill food or drop dishes; their appetites are good, yet they lose weight. The skin is warm and dry and friends may remark that their face appears flushed and the eyes wild or starey. They wear fewer clothes, sleep under lighter covers and avoid warm rooms and close places. The vessels of the neck may be seen pulsating and if palpated, thrills will be felt. The heart may beat fast and hard, and palpitation complained of even when at rest. Many complain of insomnia. Women sometimes will mention scanty or absent menses. When sitting down they fidget and make many purposeless movements. The blood pressure is high, usually a much higher pulse pressure than found in toxic adenomatous goiter. The Basal Metabolic rates are well elevated, for less than five per cent of exophthalmic goiter patients show rates under plus twenty per cent.

At any time during the course of the discase, however, there may occur an exacerbation induced by shock, siekness, overwork, et cetera. The patient then goes through a period of severe toxemia, with or without the appearance of a goiter or exophthalmos, but with all its classic symptoms, and this is called a thyroid erisis. During the crisis gastro-intestinal symptoms, nausea, vomiting and diarrhea are marked, and there is extreme debility. The so-called cardinal symptoms if absent before, are now usually manifested, enlargement of the thyroid gland; bilateral exophthalmos (almost pathognomonic when present), tachycardia and marked tremor. The skin may now be moist and warm. Weakness of the quadriceps muscle group is so specific and characteristie of hyperthyroidism that it has diagnostie significance. The heart is enlarged, rapid with a strong heaving blow to the palpating hand and the same systolic murmur found in adenomatous goiter with hyperthyroidism is present, and apparently functional. If decompensation occurs then its secondary symptoms may manifest themselves, edema, ascites and marked dyspnoea. In over seventy per cent of these cases, thrills and bruits occur over the superior thyroid vessels. A fine fibrillary tremor of the extended hands is now quite characteristie. If the patient survives the crisis, then a period of partial remission of the symptoms follows which may last for months. Usually these periods are followed again and again by waves of varying intensity. The remission may be so complete symptomatically, that the patient may consider himself cured, while on the other hand if it is but partial he becomes a semi-invalid. In the second form the disease runs a chronic course without the development of a true crisis. It may be so mild as to be uninterrupted by waves of exacerbations. At times it may begin as the remittant form and become chronic. Whichever form it be, the longer the disease remains unchecked, the more marked will be the damage to the heart and vital organs, and those patients that escape death become chronic invalids as a result of the degenerative changes. No one symptom is infallible as a diagnostic criterion; one must get a mental picture of the altered physiological responses to this hyper active

gland and knowing the possible symptoms resulting, can then picture the particular case in mind.

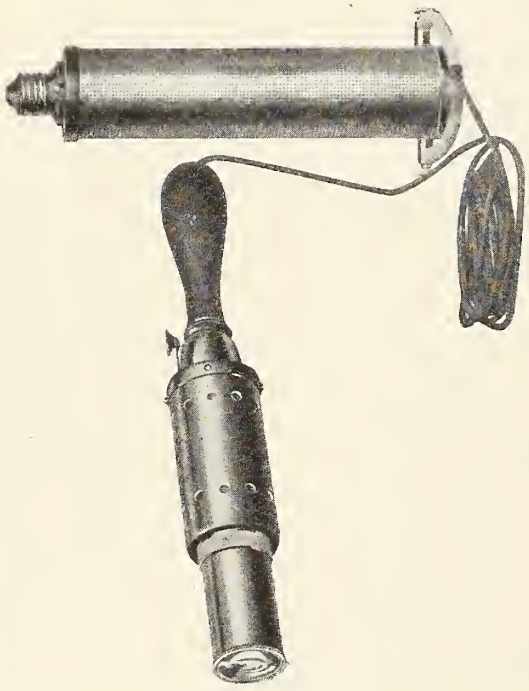
Treatment:

The treatment is surgical. Taking into consideration the slight primary risk and the promising immediate and remote results of operation, we now consider in the case of hyperthyroidism as in that of appendicitis, that the indication for operation is diagnosis.

A LAMP TO FACILITATE THE LOCALIZATION OF RECTAL ABRASIONS*

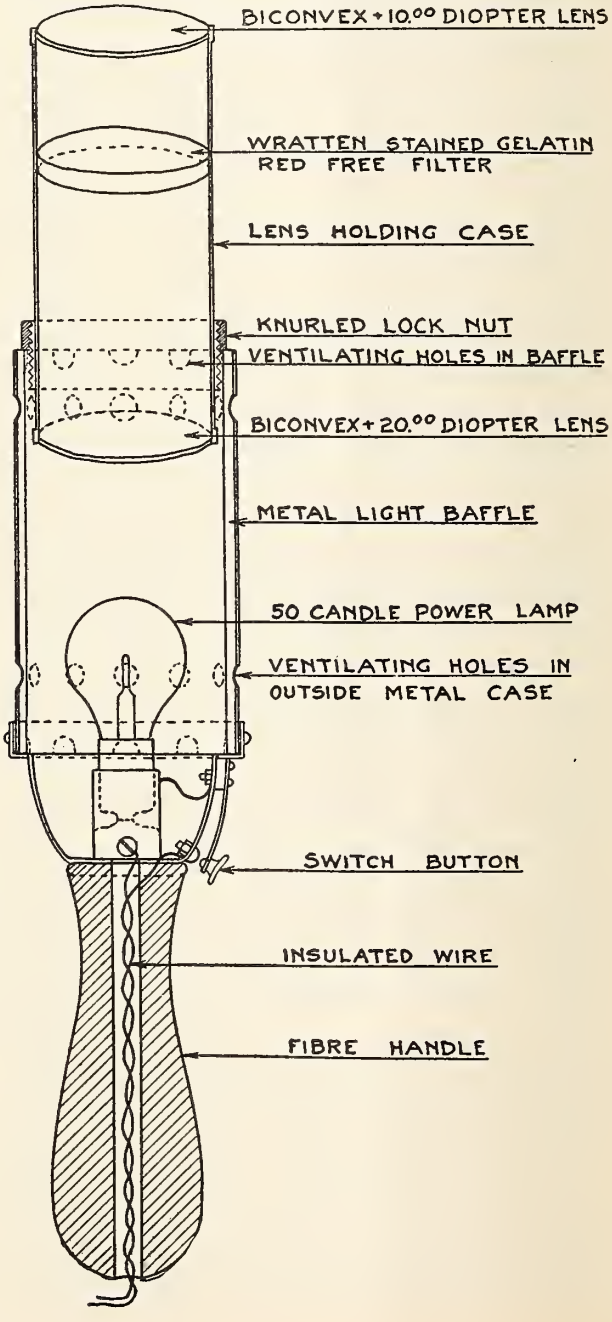
A. J. CHISHOLM, M.D.
From the Department of Surgery and Proctology, University of Colorado
DENVER

The operation for fisutla-in-ano is beset with several pitfalls; chief among which is the difficulty in locating the internal opening. It is a common experience among rectal surgeons that at times this is difficult and occasionally impossible. In search of methods for improving the technique of locating the often elusive rectal opening, many methods were considered.



Dr. James M. Shields of Denver, some months ago, called my attention to the red free light which is employed in ophthalmology to determine denudation of epithelium of the conjunctiva and cornea following the application of fluorescein to these tissues. It then occurred to me that this principle might be applied in the localization of the elusive internal opening of fistula-in-ano. By using the Shields-Black lamp in the study of fistula-in-ano and a technique somewhat after a fashion of that used by the ophthalmologists, I found that the location of the internal opening was greatly facilitated and simplified.

After many trials the technique that was finally developed, which proved of greatest aid, was as follows: An anal speculum is



inserted into the anal canal and the canal dilated after which it is irrigated with sterile water and then sponged dry. It is then sprayed with fluorescein and irrigated with normal saline solution, thereby washing away the excess of stain. Stained abraded tissue appears as a brilliant green; while under the red free light this green color is changed to a brilliant yellow. When this is done, it will be noted that wherever there is an abrasion or a small opening in the epithelial tissue, the denuded area appears bright yellow in color after being properly illuminated by the red free light.

The apparatus that we employ, a modified Shields-Black lamp, is based on the following principles:

First: A sharply focused light with focal point, approxiamtely eight inches from the source of the lens.

Second: Wratten stained gelatine light filter No. F, to remove the red rays of the light.

The lamp which we use was constructed by Mr. John C. Rhodes of the Physicians and Surgeons' Supply Company of Denver. Mr. Rhodes gives the following descriptive features of the lamp:

1—Lens Holders: Designed to fit firmly into lamp barrel; easily and quickly removed for cleaning.

2—Lamp: Barrel adjustable and quick-locking into lamp hood.

3—Red Free Filter: Scientifically correct and especially designed for this lamp.

4—Hood: Special, baffling and ventilating arrangement to prevent light leakage and lens fogging.

5—Globe: 50 candle power, clear, white light showing no filament and red free with use of filter.

6—Transformer: Small and light, for cutting current down to proper voltage, making possible the attachment of lamp to an electric outlet.

7—Weight: Light, durable, easily carried around in surgeon's satchel.

Employing this lamp and fluorescein stain upon twenty patients, I have found that the internal opening of fistula-in-ano is comparatively easy to locate.

This lamp and technique are offered in the hope that other physicians will find it a help in locating abrasions in epithelial surfaces in the rectum and elsewhere in the body.

PSAMMONA IN FRONTAL LOBE OF BRAIN

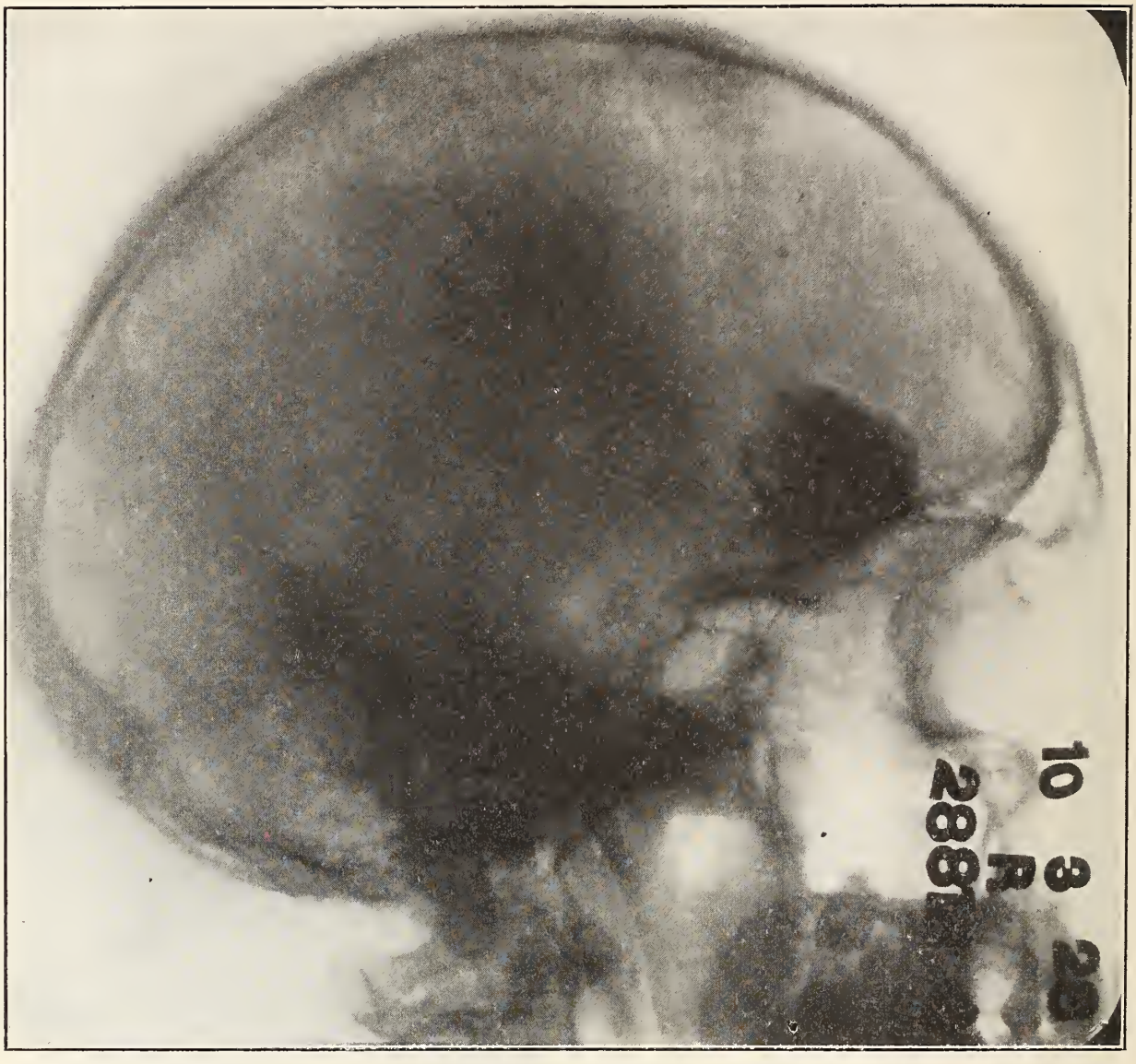
GEO. E. RICE, M.D., F. A. C. S.,
PUEBLO

CASE REPORT

No. 28,813. Mr. F. F. Age 38. Married. Carpenter. Family and personal history negative. He was perfectly well until fourteen months prior to examination. Then began to have pain in right frontal region on leaning to the right. He found it necessary to sleep either on his back or left side in order to avoid pain. At intervals of two or three months would have spells of teriffic head pain in the same region associated with nausea and vomiting. The spells would last about three days, during which time he could retain nothing by mouth and the pain prevented sleep. Between spells he was able to perform his duties as a carpenter by avoiding leaning to the right. For the past twelve months he had noted an increasing irritability. In the last spell, two weeks before operation, his life was despaired by his



The patient four months after operation, showing scar.



Lateral view of tumor

physician. He complained of no symptoms relative to vision, smell or hearing. He had never had any type of convulsion.

Examination: Medium build, slightly undernourished. B. P. 98-60; P. 78; Temp. 99. Head and neck negative. Pupils equal and react to light and accommodation. Heart negative. Lungs: few moist rales left apex. Abdomen negative. Extremities negative. Reflexes and sensation entirely normal. Fundus examination revealed one diopter choked disc each eye. No changes in fields. Tested for hearing and smell —normal. X-ray of the skull showed dense shadow in the right frontal lobe. Blood, urine and equilibrium tests normal.

Operation: Osteo-plastic flap turned in right frontal region. The dura was dissected free to expose the floor of the anterior fossa. During this procedure the tumor was felt in the frontal lobe. On making a linear incision in the dura, inferior to the mass, a large amount of fluid escaped and the tumor was located, completely enveloped by convolutions. This tumor was suspended midway in the frontal lobe by a band of fibrous tissue resembling an obliterated vein with an inferior attachment to the dura. The attachment was severed and the tumor removed. Portions of the capsule remained and were wiped out with moist saline sponges. There was no bleeding from the bed of the tumor or its fibrous attachment. The dura was closed with silk and the bevelled flap replaced. A small wick of iodoform gauze was placed in the posterior inferior trephine on account of slight uncontrollable oozing. Scalp was closed with silk and dermal. Drain removed on third day following slight serosanguinous drainage.

Convalescence was uneventful. The patient has had no pain in the right frontal region since the operation. He was given no opiates at any time. On the seventh post-operative day he complained of severe pains in the left eye, which was relieved by aspirin, grs. X, by mouth. He returned to his work as a carpenter six weeks after the operation and continued to date, when the photograph was made, four months after the operation. At this time examination of the fundus by Dr. Hopkins revealed a waxy appearance of the nerve head but no definite swelling, and no changes in the fields.

Pathological Report: Origin: Brain neoplasm. Gross: Hard mass 3x2.5x2 cm. made up of sand-like particles in a glue-like matrix. Cord-like structure 2x0.3 cm. attached to one side.



Frontal view of tumor



Lateral view of tumor three weeks after operation

Microscopical: Brain tissue, with increase, in some areas of glial structures, encloses globules of hard, sand-like material, the less hard portion taking the acid stain. Column of tissue extending between arachnoid and neoplasm consists of glial cells and fibers.

Diagnosis: Psammoma.



Showing fragments of the tumor.

Comments: This case is reported due to its unusual location and character. Psammomas of the spinal cord and perivascular spaces have been reported. No doubt this tumor was of endothelial origin, arising either from the arachnoid or dura and later became pedunculated. The greater part of the tumor was of a rock-like consistency with its fibrous capsule containing multiple sand-like bodies incorporated in it.

Barring the definitely localized pain, it would have been impossible to locate the tumor, even approximately, except by the x-ray. Fortunately this is one of those rare brain tumors that are impermeable to the x-rays.

NEWS NOTES

Dr. Esmond R. Long, Professor of Pathology of the University of Chicago, was the guest of honor at a special annual meeting of the Clinical and Pathological Society at a dinner at the Brown Palace Hotel, Monday, March 18th. He spoke on the subject of "Pathological Anatomy before Morgagni." The following evening he addressed the Denver City and County Medical Society on "Internal Tuberculin Reactions in Tuberculosis." Wednesday, March 20th, he addressed the faculty and students of the University of Colorado Medical School and Physicians in attendance at the fourth spring clinic on the subject of "Diverse Concepts of Pathology."

Dr. Hamilton Barnard attended the clinical conference in orthopedic surgery at the Mayo Clinic which was held from March 4th to 8th.

Dr. and Mrs. S. B. Childes have just returned from a two months' vacation in Florida.

Dr. Judson O. Roberts died of angina pectoris while at work in his office, March 20th. Dr. Roberts was a member of the Denver County Medical Society, the Colorado State Medical Society and the American Medical Association.

Dr. Kate Walker Beall died March 4th in California after a protracted illness. Dr. Beall was well and favorably known to most of the profession of the state because of her long and active career in medical affairs.

Dr. Frank Stephenson was a recent guest of honor of the Kansas City Medical Society. He read a paper on "Radiographic Findings of the Chest."

Dr. and Mrs. Cuthbert Powell have just returned from a winter vacation in southern California.

The University of Colorado School of Medicine and Hospital offered their fourth annual clinic March 20th to 22nd. More than two hundred doctors were in attendance.

ANNOUNCEMENT

The American College of Physicians will hold its Thirteenth Annual Clinical Session in Boston, April 8-12. Dr. Charles F. Martin, Dean of the Faculty of Medicine, McGill University, is president of the college this year, and Dr. John H. Musser, Professor of Medicine at Tulane University Medical School, is president-elect and will be inducted to the presidency toward the end of the Boston meeting. Dr. James H. Means, Jackson Professor of Clinical Medicine at Harvard Medical School and Chief of the Medical Service at the Massachusetts General Hospital, is general chairman of all Boston committees having charge of arrangements for the clinical session of the college in April.

Programs and details concerning reduced fares, admission, etc., may be secured from the executive secretary, E. R. Loveland, 133-135 S. 36th Street, Philadelphia, Pa.

AMERICAN PROCTOLOGIC SOCIETY

The American Proctologic Society will hold its annual meeting in Detroit—"The Convention City"—on May 13, 14 and 15. The Hotel Statler has been selected as headquarters for the scientific program and the scientific and commercial exhibits.

MEDICAL SOCIETIES

SAN LUIS VALLEY

The San Luis Valley Medical Society met at the San Luis Hotel, Alamosa, on the 14th, and after a turkey dinner Dr. Heller of Pueblo presented a paper on "Periodic Health Examination." Discussions followed by Dr. Davlin, Dr. La Moure of Pueblo, Dr. Davies and Dr. Herriman.

A paper was read by Dr. Rex Fuller of Salida on "Generalized Bone Disease," and a case of multiple myoloma was presented with x-ray demonstration. This was followed by a business meeting at which officers for the coming year were elected as follows:

President—Dr. A. B. Gjellum.
Vice President—Dr. J. C. Chambers.
Secretary-Treasurer—Dr. Sidney Anderson.
First Delegate to State Convention—Dr. Sidney Anderson.
Alternate Delegate to State Convention—Dr. C. A. Davlin.

WOMAN'S AUXILIARY

Medical husbands! Take this article home to your wives!

The Woman's Auxiliary of the Colorado State Medical Society recruits every doctor's wife in the state as a member of the organization.

We, as an association, have met with the approval of the officers and members of the county as well as state medical associations, and hope to welcome each medical man's wife, belonging to the State Medical Association, as one of our group at the meeting in the fall.

Because we have been unable to reach some of the women through direct mail correspondence, we take this means to urge every association in the state to co-operate.

A social meeting of the doctors' wives of each county could be the embryo of an organization in that district. Just let us know of your intention to become one of the links in this great organization that has met with endless enthusiasm in every state of the Union.

Mrs. George W. Miel of Denver, president of the Colorado Auxiliary, assisted by a working staff of doctors' wives from all over the state, extends this invitation to you, the doctors' wives, to join us.

A better understanding among the medical profession, linking the wives together for a social or community betterment, has been the aim of the groups. You may have any goal for your district you want. A social meeting once a month will be an incentive for neighborliness, and we all want to become better acquainted with the wives of the medical profession of Colorado.

For information or assistance of any kind, write to the membership chairman, Mrs. R. G. Smith, 1770 Forest Parkway, and she will reply immediately.

Won't you join the Auxiliary and help make the chain of understanding and friendship one of the strongest factors in the state?

A young man who had taken his Ford out on a cold wintry day was covering the engine with a blanket.

Little boy (looking on): "Don't cover it up, mister, I saw what it was."—Rock Island Magazine.

WYOMING MEDICINE

President, F. A. Mills, M.D., Powell — First Vice President, C. W. Jeffrey, Rawlins
President-Elect, J. L. Linn, M.D., Lander
Secretary, Earl Whedon, M.D., Sheridan — Treasurer, Evald Olson, M.D., Lovell
Delegate to the A. M. A., Geo. P. Johnston, M.D., Cheyenne — Alternate, J. H. Holland, Evanston
Councilor, H. L. Harvey, Casper
Member of Medical Defense, Earl Whedon, M.D., Sheridan
Fred Horton, M.D., New Castle — George L. Strader, M.D., Cheyenne

EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

NEWS NOTES AND COMMENT

CASPER MEETING

The programme for the next annual meeting of the Wyoming State Medical Society, to be held in Casper, Wyoming, June 24th and 25th, will consist of four papers by outstanding out of the State members of the medical profession. The rest of the programme will be furnished by members of the Wyoming Medical Society.

Casper is an ideal city for such a meeting; centrally located and possessing excellent hotels; highways leading from the south, east, north and west and well managed hospitals which will afford splendid clinics. Indeed this part of the programme will be under the direction of the Natrona County Society and promises to be one of the most interesting parts of the two-day meet.

It is true that the average Wyoming doctor attends our annual meetings not only for the renewing of friendships of years standing, but to gain something from our meetings that will make him a more useful doctor. To make this desire come true the programme this year will be built along lines most useful to the men who practice in Wyoming.

This is a personal appeal to every member of the Wyoming State Medical Society inviting him to submit to the State Secretary the title of any paper which he wishes to read before the Casper meeting.

The time to be devoted to papers and their direction of the Natrona County Society and it is self-evident that every member cannot present a paper, but the program committee will select the most interesting and valuable papers submitted. Here is a chance to make our program one that will be of the most interest to the profession. It's not going to be all work and no play. Fun and amusement will certainly have their place and Casper can be counted upon to see to that part of the program. The thing we most desire is to make this year's meeting the most interesting and valuable ever held by the Wyoming State Medical Society.

Don't say that you can't write a paper. Take some subject you are most interested in and write up the cases you have had. Your successes and your failures. They will be of interest to other members and from the discussions that follow you will gain help in your troubles.

The programme will be made up during the month of May, so write to the Secretary, Dr. Earl Whedon, Sheridan Wyoming, before May first. Do it now. Make any suggestions you have as to, out of the State speakers you most wish to have invited and give the titles of your local papers, but do it now, don't wait. It will be too late after May first

The ladies, of course, will be there with us and the Wyoming Woman's Auxiliary will hold its meeting and add to our pleasures. Plan to bring your wife. She will enjoy the meetings just the same as you. E. W.

"THANKS, UNTIL YOU'RE BETTER PAID"

Ten thousand curses on the fiend in human form that coined the above phrase. There are a few others in the same category, such as . . .

"I'll be around tomorrow with the money."

"Spare no expense."

"You don't know how much I appreciate this."

"Just put that on my bill."

"As soon as I get paid."

"As soon as I sell my oats . . . hay . . . hogs . . . ad-infinitum."

The next time doctor that you step in to buy a suit of clothes, some new office furniture, or an automobile, just try one of the above out on the benign merchant. Watch the transformation in his facial expression. At first perhaps he will think you are joking. As the seriousness of the import strikes him his countenance will do a rapid transfiguration that would put Lon Chaney to shame. After a lot of confab you may get the credit, but ten to one you will have signed legal documents enough with which to paper your reception room.

What a different story when you are on the other end of the bargain. When a patient slings one of these worm-eaten excuses or evasions at you, what do you do or say? If you are like about 75 per cent of your brothers, you smile weakly and agree, "Oh, that's all right; sure, yes, that'll be fine."

Does the patient come back? Does the money come rolling home? Sometimes, after you have waited from ten to fifty times as long for it as any other business man would, and sad to relate, too many times you just wait and wait and hope.

Now is the time to buck up. Not only concentrate on collections, but do more cash business as well. Make your patient feel that not only is his presence in your office a professional visitation, but a business transaction also. Do not wait for him to lay down the terms on his departure from your office, but anticipate this in a tactful manner with an appropriate statement or suggestion on your part, such as, "Now, Mr. Jones, I presume you wish to make payment for this now." If he balks or makes excuse for extension of time, get out your pencil and pad requesting that he give you his full name, address, place of employment, any other place or places he may have done credit business with, or is doing credit with at this time. These tactics will usually take him off guard, not expecting this alertness on the part of the average professional man, and in most instances if the amount is not too large he will pay you on the spot rather than being embarrassed by answering the above questions. If you carry out this procedure you will find that 50 per cent will pay on the spot, and the other fifty will come closer to paying you promptly than they ever did before.

If it is to be a case of extended treatments or any operation involving a larger fee, use the same methods, but either suggest payment in advance, part payment at least, and then have your patient or their guardian sign a note or notes to cover the balance. They are then more properly impressed with the business end of the transaction and sense their obligation to pay.

Any account in your office that is over three months old is a bad one if no effort has been made to pay something on it, or no explanation offered you for the reason of non-payment. If the account is in your own town, send your office girl out with instructions to get the money, a payment, or the reason why. If you do not employ an office girl, hire a collector on a commission basis. There are a great many women in your own community that would be glad of the chance to earn a little extra money putting in a couple of hours every day doing this work. A woman collector by the way is usually more tactful, and a surprising feature of this is that especially if she is known by the rest of the women in the community they are more apt to pay promptly rather than have her return a second or third time on the same errand. Obviously the above advice applies particularly to the smaller towns, but the city physician can carry out a similar program with a hired collector or better still with the aid of a loyal office girl. The average office girl is so utterly sick of seeing the same names and amounts on statements month after month with no response that she will willingly enter into any program to stimulate collections. She can do worlds of good by personal contact suggestions at the time of treatment. Calling up delinquent debtors on the phone. Personal calls on them at their place of business or at their residence. By paying her a

fair extra commission on all old accounts collected you will be surprised at the results. It's the old story, personal contact usually gets results when the postman fails. You should never feel it necessary to apologize for your actions in the collection of a just debt.

It is encouraging to note that physicians everywhere are becoming much wiser and better business men. The medical profession at large is slowly awakening to the facts.

That paid accounts are the best accounts.

That your patients' respect for your business integrity increases his respect for your professional ability, and incidentally, doctor, it increases your own self-respect.

That the equation Dead Accounts = Dead Beats.

That a bird in the hand is better than too many hand shakes.

J. GEORGE WANNER,
Green River.

NEWS ITEMS

At a regular meeting of the Laramie County Medical Society the following members were elected as officers for the year 1929:

President, Dr. G. M. Anderson; vice president, Dr. W. M. Lacey; secretary, Dr. H. Lucic; treasurer, Dr. W. A. Wyman. Board of censors: Dr. Geo. P. Johnston, for one year; Dr. F. L. Beck, for two years; Dr. J. D. Shingle, for three years.

This report should have been published in our March issue, but was overlooked in the secretary's office.

Natrona County

Dr. H. A. Reichenbach, one of the pioneer doctors in Casper, died of pneumonia February 29th. Dr. Reichenbach was actively engaged in practice for years in Casper, but for the last few years has not been in general practice. The members of the Natrona County Medical Society attended the funeral in a body.

Dr. W. O. McDermott of Casper has been appointed county physician by the county commissioners.

Dr. H. R. Lathrop has been appointed county health officer, taking the place of Dr. Garst.

Governor Emerson appointed a new State Board of Health, composed of Drs. A. B. Tonkin of Riverton, W. H. Hassed of Lusk, Galen A. Fox, Cheyenne; B. V. McDermott of Hanna and T. E. Marshall of Sheridan. These appointments have all been confirmed by the State Senate.

Northwestern County

Dr. Francis M. Lane of Cody is at present on a vacation in Havana, Cuba, and expects to visit in Florida and the south before returning to Cody. Dr. Lane has been one of the outstanding doctors in the Basin country for years. We extend to her our good wishes on her vacation.

Dr. T. J. Riach and his wife, of Casper, were recently in an automobile accident from which the doctor is slowly recovering.

It seems that automobiles and railroad engines cannot occupy the same space at the same time without doing damage to some one. We all hope for the speedy recovery of Dr. Riach. As we understood it, Mrs. Riach was not seriously injured.

Fremont County

At the election of officers, held in Lander March 2nd, the following were elected:

President, Dr. A. B. Tonkin, Riverton; vice president, Dr. R. J. Luman, Riverton; secretary-treasurer, Dr. L. H. Wilmoth, Lander. Board of censors: Drs. E. L. Jewell, Shoshoni; F. J. Replogle, Lander; L. H. Wilmoth, Lander.

Dr. Paul R. Holtz, formerly of the Platte County Society at Wheatland, was unanimously elected to membership.

The Society expects to hold monthly meetings.

OPINIONS WANTED

There has been quite a feeling over the state that the present rules and regulations as now carried out in our Wyoming Tuberculosis Hospital in Basin are not as simple and efficient as they should be. We believe the procedure for admission could be improved.

Kindly write and advise me what suggestions you have to offer for their improvement and also tell what difficulties you have had in trying to gain admission for worthy patients.

Sincerely yours,
DR. F. A. MILLS,
President Wyoming State Medical Society, Powell, Wyoming.

WYOMING'S HONORARY MEMBER

Dr. A. R. Mitchell of Lincoln, Nebraska, who was adopted by the Wyoming State Medical Society several years ago as our honorary member, was tendered a banquet at the University Club by the Lancaster County Medical Association, March 5th. This banquet was given to honor Dr. Mitchell on account of fifty years service as a doctor in Lincoln, Nebraska.

Dr. Mitchell is now serving his third term as a trustee of the American Medical Association. He helped found the University of Nebraska in 1883 and was its first dean.

At present he is chief of staff at St. Elizabeth's hospital. He has been medical director of the Banker's Life Association since its organization, is a member of the American College of Surgeons, surgeon for the Rock Island, district surgeon for the Union Pacific and consulting surgeon for the Burlington and Northwestern Railroads.

Dr. Mitchell and his genial wife have often attended our Wyoming State Medical meetings, and has secured for us some of the outstanding men who have honored us on our program.

All the members of the Wyoming State Medical Society love and honor the genial and talented doctor, and we love to have him with us at our annual meetings. We extend to him our best wishes for years more of such a useful life. Congratulations, old boy.

Every year an excursion boat was made up and the boys of the town were invited to go to the bathing beach.

"Gee, Mickey, but you're dirty," said one little urchin to another.

"Yep, I missed the boat last year."

Colorado Medicine

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EDITORIAL NOTES AND COMMENT

MEDICAL ETHICS FROM HYPPOCRATES TO LOUIS E. SCHMIDT*

In dealing with the subject of medical ethics, a word of the history of medicine is in place. It is a curious thing and a matter worthy of reflection that medicine has its origin in the deity. The primitive mind has assigned it the highest office—that of being an integral part of God or the gods. For many centuries sacerdotal functions and emperical knowledge, meager as that knowledge was, went hand in hand in the treatment of disease. Dr. James Gregory Mumford very aptly remarks that "medicine is closely interwoven with the story of peoples, of civilization, and of the human mind." The flourishing period of Greek thought is an excellent illustration of this remark. In the relatively short period during which Greece produced statesmen like Themistocles and Aristides, poets like Sophocles and Euripides, scientists like Socrates, Plato, and Aristotle, and historians like Thucydides and Xenophon, it also produced Hyppocrates,—the greatest physician of all time.

The human mind has made enormous strides, and has recorded colossal achievements from the Eighteenth Olympiad (the birth of Hyppocrates) to the April evening in 1929 when the Chicago Medical Society expelled Schmidt for unethical conduct. Throughout this period medicine, whether in its prime in Alexandria or during its imprisonment throughout the Dark Ages in the monasteries or at the Renaissance, continued to give humanity the fruit of its collective labors. For twenty-five centuries medicine held down tenaciously to the ideals, principles, and lofty morals handed down by Hyppocrates. His principles of professional conduct, to use Harvey Cushin's words, have stood the test of usage as long as the canons of the Old Testament. The spirit of the Hyppocratic credo, the ethical and civic relationship of physician to his patient and the public, has been the guiding light and spirit of medicine. They appealed equally well to his contemporary Aristotle, to the great moralist and physician Maimonides in the twelfth century, to Servetus in the sixteenth, Semmelweiss in the nineteenth, and to Lazear, McClintock, Stokes, and Hideyo Noguchi who left but yesterday. These worthy generals, and many others not mentioned, had always a noble army of medical volunteers who willingly died in search for the cause of disease and human suffering.

Hyppocrates bids the physician to transmit the knowledge of the art only to those disciples who possess the moral qualifications to practice it. It is this ethical code, this hallowed set of rules, which appeals to the medical mind. One physician unhesitatingly sucks the throat membrane of a child struggling for life with the Moloch of diphtheria; another exposes himself to the bite of the carrier of yellow fever, a third to smallpox, and so ad infinitum. This type of mind abhors and has abhorred from time immemorial all sorts of publicity and advertising, no matter how coated or clad. Medicine and the great majority of medical practitioners always were and are at heart in-

*Recently expelled from the Chicago Medical Society for unprofessional conduct.

dividualistic. It is only by individual relationship that the successful (not necessarily financially successful) and seriously minded physician is able to lift, encourage, straighten, and adjust the body and mind of his patient. It is chiefly the individuality of the physician which so often spares the patient from the visible and invisible daily enemies which are breaking him down.

One engaged in this calling ought not and need not mimic corporation methods of advertisement and all that commercial advertisement stands for. If this was the spirit that guided the Chicago Medical Society in expelling Dr. Schmidt, it acted in harmony with the highest ideals of medicine. The act of the Chicago Medical Society does not necessarily imply that the expelled physician is an unethical individual or an unworthy citizen. According to lay press and to other evidence, Dr. Schmidt seems to be that extremely rare combination of a physician worthy of his calling, a philanthropist of the purest type, and a business man of highest integrity. Dr. Schmidt's "humors," to use the Hyppocratic language, seem to be mixed in proper proportion. But what if Dr. Schmidt should resign from the Chicago Institute of Social Hygiene, and the humors of his successor (not necessarily the Hyppocratic blood, phlegm, yellow bile, and black bile) should happen to be mixed in improper proportions—the result would be disastrous. According to Hyppocrates' doctrine, it would mean disease. As physicians of the age of Preventive Medicine it is our moral duty not to permit such a thing to occur.

Medicine may be as some contend, a business; but it is a business ingrained with altruism of the highest kind, a business imbued with the spirit of service to humanity at a sacrifice, ranging from a decrease in income to the giving of one's health and life. If medicine be considered a business, then it is a medical business, and as such its high ideals and standards must be maintained.

There are indeed few people who have actually been deprived of either medical or surgical aid because of lack of funds. Parenthetically we must remind ourselves and our critics that the fact that an occasional patient does not get the particular physician or surgeon whom he considers as the only one competent to handle his case, does not in the least indicate that he is deprived of adequate medical or surgical aid.

Of late it has become a sort of custom with a number of rich lay people, whose highly impressionable nervous systems and hearts frequently get the best of their judgment, to establish philanthrophic medical institutes and free health centers for all sorts of people and occasions. This custom on the part of a few rich, noble as it may be in purpose, is not always the result of an actually needed enterprise to counteract the physician's heartlessnes and his mercenary attitude towards the indigent portion of the community.

Garrison in his **History of Medicine** tells us that in the year 490 B. C. the great philosopher and physician, Empedocles, expressed his relation to the poor in the following verse:

> "Thou art my friend; to thee.
> All knowledge that I have,
> All skill I wield are free."

Twenty-two hundred years after this verse was written, one physician, by the name of John Hunter, in a note given a patient to take to another physician by the name of William Hunter, wrote, "I do not know the bearer's case. He has no money. He is desirous of your opinion. Do all you can for him." Similar notes are written daily by thousands of physicians in the year 1929, and they are not advertised either individually or collectively.

The question of medical ethics and its importance may perhaps best be summarized in the words of John St. Loe Trachey, in **The River of Life**: "No profession is more exposed to the temptation to forget honor, humanity, and kindness than the medical profession, and none in which the exploitation of human suffering is easier. Yet there is none in which the temptation is more triumphantly withstood. Let this be remembered by the public when they feel inclined to sneer at medical etiquette, as if it were a code for maintaining selfishness and enrichment. Medical etiquette is the salvation of the patient." L. V. T.

OBSERVATIONS ON THE AUTUMN TYPE OF DIARRHEA AMONG INFANTS IN COLORADO*

J. W. AMESSE, M.D.
DENVER

For the past eighteen years, and probably for a much longer period, there has appeared regularly in the late summer and continuing with increasing violence into the fall months, a malignant type of diarrhea in infants and young children. This disease, which appears not to be communicable, exists at this season of the year throughout the entire intermountain region; it has not, thus far, been the subject of intensive study and its etiology is obscure. Certain facts, however, have intruded themselves in the few investigations made and it is with the object of bringing these points before the Society that formal discussion of the disorder was recommended. As a basis for this consideration we may quote from the reports of the State Board of Health, figures furnished by Dr. McKelvey, and from the returns of the Denver Health Department, supplied by the Registrar, Mrs. Davis. We find that during the year 1927 there were reported in Colorado 339 deaths from diarrheal diseases in infants under 2 years of age and 69 deaths in older children and adults. These cases were scattered over the entire state—Weld County for example, reporting 49, Las Animas 27, Pueblo 26, Denver 45. This is not an unusual mortality for approximately one million people; the most interesting aspect is the fact that these deaths did not occur during the hot season when diarrheal affections may be expected and which prevail so extensively in other sections during the summer months. Dr. McKelvey's report shows that of these 339 infants, 105 or 31 per cent died in the month of September and 41, 12 per cent, in October. In Denver there were reported 73 deaths, under 2 years, in 1923; 69, in 1924; 105, in 1925; 52, in 1926; 45, as above mentioned, in 1927 and thus far, in 1928, there have been 58. Of these 20 have occurred in the month just past, 14 dying at the Children's Hospital, of which 6 were non-residents, 1 at the Denver General, 1 at the Colorado General and 1 at St. Luke's. The same percentage of the mortality, for late August, September and October, was found to obtain in Denver as that shown for the state at large, the singular and entirely inexplicable situation presenting of enteric diseases demanding their highest toll during our otherwise most salubrious season. Obviously metereological conditions cannot be held responsible. In addition to the invasion among infants and children there has been, not only this year, but every year, a considerable morbidity among adults. In these patients whose number cannot be determined the disease has usually been ascribed to dietetic errors or to so-called intestinal influenza. If we assume the death rate under the age of 2 years as about 20 per cent, a very conservative estimate, it will be seen that over 2,000 infants per year suffer from this condition in Colorado, with all the anxiety, distress and expense this entails for the parents and, inasmuch as many of these are indigent patients, for the taxpayers. The disease unquestionably contributes largely to our inexcusably high death rate in infancy, and presents one of the major problems in sanitation and preventive medicine. It is a challenge to the profession, to our health departments, to our laboratories, to our medical school, all having been remiss in permitting this unnecessary sacrifice of child life and health to continue.

Diarrheal diseases in the United States now claim one-third of the total mortality of infancy—approximately 100,000 lives each year, yet we are justified in believing, in the light of advances made the past three decades, that scientific medicine has reached a plane where all enteric disorders may be considered as preventable as are the acute contagions. Consistent and long continued studies of alimentary diseases, comparable with those underway in the realm of communicable affections, have not been made. A brief description of the disorder in ques-

*Read before the County Medical Society, Oct. 2, 1928.

tion may be permissible at this point. It must be classed with the alimentary intoxications, a form of toxicosis involving the gastro-intestinal tract, characterized by vomiting, diarrhea, profound nervous manifestations and anhydremia. The etiology is as yet unknown, but inasmuch as many infants subsisting exclusively on milk and water are stricken, it is fair to assume that these elements, together with possible dust or air borne infections and faulty hygiene, may be factors in its origin. Babies who have been overfed, or who have been fed irregularly and particularly those infants whose formulae have been frequently changed seem especially susceptible. The onset is usually sudden; the disease is ushered in with vomiting, followed in a few hours with diarrhea and accompanied by fever, often reaching to 103 or 104 degrees in the course of 48 hours. Signs of collapse may soon be noted; the loss of fluids and the starvation incident to continued vomiting combine to produce a state of extreme dehydration. There is marked acidosis, the blood is concentrated, the feces assume the choleraic type, the extremities become cold, the urine shows albumin and casts, convulsions are frequent and unless heroic measures are instituted, the little patient succumbs to the very manifest intoxication in from four to ten days. Post-mortem examinations reveal nothing more than congestion of the mucosa with parenchymatous changes in the kidney and liver; occasionally, where bloody stools have been passed, punctate hemorrhages or small ulcerations may be found in the lower bowel. A study of the series of fatal cases in the Children's Hospital during the autumn of 1926, made by the late Dr. Burdick, shed no light on the role bacteria may have in the genesis of this disorder; the normal flora of the bowel seemed not to be greatly altered, and careful culturing of the stools revealed no constant pathogenic invader. Animal inoculations were not performed.

The prognosis in these cases depends entirely on how long and how far the profound changes in the infant's metabolism have progressed. It is also concerned with the age of the child, its previous history, particularly with respect to indigestion, and the degree of dehydration present. One may predict a favorable outcome in those babies responding promptly to measures of detoxication, and a very unfavorable one in cases where the sensorium is clouded early.

Complications

In the series of cases noted each year at the Children's Hospital there have been three complications frequently encountered. Of these otitis media is the most common and may be found in greater or less degree in practically every case prolonged for more than one week. The association of diarrheal disorders with otitis has been recognized for years, and has prompted some clinicians to believe that the ear itself is the port of entry rather than the site of a secondary involvement. The next complication to be looked for is pyelitis, which may be due to increased virulence of the bacillus coli following marked lowering of the patient's resistance. The remaining major complication is broncho-pneumonia which may intervene at any time, but which is usually terminal.

Treatment of this condition, whether a distinct clinical entity or a syndrome of repeated food injuries, has been discouraging in the extreme. In no class of diseases is prophylaxis more imperative; breast feeding through the latter months of the year especially should be insisted upon, wherever possible; all the minutae of infant hygiene and nutrition must be stressed; only pasteurized or boiled milk should be employed and the source of the water supply be unquestionable. With the slightest symptom of gastrointestinal irritation, food should be withheld for at least 24 hours and copious amounts of water offered.

For the toxic baby an entirely different problem presents. Here we are confronted usually with an infant in an advanced stage of toxemia, intolerant of food, acidotic, collapsed, with dry, parched skin, frequently with an ulcerative stomatitis, rapidly proceeding to metabolic bankruptcy. To arrest this process and bring the tiny sufferer back to a point where its organs are responsive to therapy constitutes one of the most difficult obligations an internist may meet. The following plan, adopted after painstaking observation of the clinical progress in many

cases, is one commonly followed by most pediatricians, due regard being taken of course for variations in the symptomatology and in the individual response of the child to the specific measures used.

After lavage of the stomach with normal salt or weak soda solution, this organ is kept at rest for 12 to 24 hours, the normal fluid needs of the body being kept up with hypodermoclysis, in which Ringer's solution, normal salt or varying strengths of glucose solution may be used. If the temperature is high, it is reduced by cool soda enemas or tepid sponging, with ice bag to the head. When breast milk, probably the best anti-toxic food, is available, it should be given at the end of the starvation period in small quantities with 2 or 3 hour intervals. This, unfortunately, is rarely at hand and a choice of other anti-toxic foods must be made. Among these we have usually available buttermilk or lactic acid milk, or albumin milk either freshly prepared or in powdered form. Such foods may be sweetened at first with saccharin and later with corn syrup; they are given in dilutions applicable to weight and age and their water content is reinforced by the use of weak tea or toast water between feedings, while subcutaneous injections are continued. If the food is rejected, the continuous nasal drip may be substituted for 12 hours or even more, and the mixtures cautiously introduced again. The intraperitoneal route is here used by many to fortify the circulation, but it appears to have lost much of its popularity. Intravenous injections are more rational and are indicated in all protracted cases. When these measures fail to ameliorate the symptoms promptly, transfusion is advised and the results from this simple procedure fully justify the additional expense incurred. In repeated instances we have found it the supreme measure. When transfusion is not feasible, whole blood from a suitable donor, in amounts from 20 to 30 c. c., should be injected intramuscularly.

Drug therapy is no longer employed as enthusiastically as in former years. Laxatives are usually contraindicated from the beginning, but stimulates such as caffein must be employed when pronounced heart weakness is present. Epinephrin for acute circulatory collapse is frequently employed. Preparations of bismuth for the diarrhea are usually quite ineffective even in large dosage and opium has no place in the picture whatever. External heat, hot drinks, mustard baths or packs form a part of rational management. For the acidosis, insulin has been used in amounts from 1 to 3 units with excellent results. I take the liberty here to abstract one case to illustrate the graver manifestations of this intoxication:

A female infant, 1 year of age, previously well, became ill on August 28th last with vomiting and diarrhea which became worse in spite (or because) of home remedies. The stools were frequent, contained much mucus but no blood; the baby grew more toxic and finally had a convulsion; she was extremely dehydrated. On admission to the Children's Hospital, September 7th, these symptoms were recorded. The patient presented the typical appearance of toxemia with collapse; the fontanelle was depressed, the eyes sunken, the sensorium dulled but reflexes unchanged. The stools were of a greenish color, liquid and contained much mucus; the temperature was 102 degrees but rapidly rose to 105; the pulse ranged from 130 to 160 and the respiration from 25 to 45. The urine was loaded with pus; the hemoglobin was reduced to 58 per cent; there was a leucocytosis of moderate degree. Transfusion was performed at once, 150 c. c. of whole blood from the mother being injected into the small saphenous vein of the left leg. Caffein was given freely for cardiac collapse and glucose solution administered intramuscularly. It was fed on powdered protein milk and small doses of whisky were offered between feedings. Notwithstanding these measures, the vomiting and diarrhea continued, the toxemia was progressive and the baby died on the 10th day. At autopsy, performed within 3 hours, no striking pathological phenomena were noted. There was injection of the mucosa throughout the intestinal tube, with incipient broncho-pneumonia of the right lower lobe.

In casting about for the source of this vicious enemy of child life, one is naturally

forced to consider, first, an infectious process in which the causative factor is transferred from one infant to another through the usual channels. Happily this may be as immediately dismissed; in the hospitals there has been no cross infection, babies with this type of toxicosis may and do occupy the same ward as ordinary feeding cases without menace, and without extra precautions. The other factors commonly considered in the extension of enteric disease are the milk supply and the water supply. A few clinicians believe that dust may occasionally play a part and it certainly cannot be excluded. We have gone thoroughly into the milk problem. Denver has on the whole a satisfactory milk supply, not as good as it will be when the present city ordinance is completely enforced but infinitely better than it has been in years gone by. For example, in a recent report of Mr. W. M. Scott, Deputy Health Commissioner, we find that the average retail milk had a bacterial count, in July, 1923, of 305,000 and, in March, 1928, 18,000 with a score of 93.5 per cent. All cattle are tested for tuberculosis. In 1923 there were 160 retail dairies in Denver while today there are but 63, making periodic inspection less difficult. Ninety-seven per cent of the milk is pasteurized under supervision, the remaining 3 per cent being closely inspected. It is believed, so far as Denver is concerned, that milk can be definitely excluded as an etiological factor for the disease in question. There remains, then, the possibility of water borne disease. It should be noted in this connection that practically all the town populations of this intermountain country use surface water exclusively for drinking purposes. These water supplies are stored in lakes or reservoirs more or less exposed to the elements; they are not drained. In Denver and in most of the other large communities excellent filtration plants are in operation, the water is chlorinated and copper sulphate is employed in amounts sufficient to discourage the growth of algae. The bacterial content is practically always low and pathogenic growths are rare. It would appear from these well authenticated facts that mistrust in this direction is hardly warranted, but certain things remain to be cleared up. For instance, it has been shown that infants fed on boiled or pasteurized milk, and given only artesian or distilled water, rarely develop the type of alimentary intoxication described. Again, breast fed infants, given municipal water between nursings, have been afflicted with this disorder. We submit a working theory for the conduct of a careful investigation: Collections of standing water must accumulate, as time goes on, relatively large amounts of organic matter in the shape of weeds and grasses, whose seed is conveyed by such agencies as the wind or the flight of birds. When the vegetation ripens, it becomes detached and portions may often be seen floating on the surface. With the advent of warm weather in July and August, and a corresponding higher temperature of the water supply, some of this decayed vegetable matter is dissolved and, of course, passes through the filter. If noxious products are released in the disintegration of such plant life, they, too, will be present at the spigot. As yet, no tests have been made, at least of any consequence, to determine what harmful organic bodies, if any, contaminate our water courses, but it seems entirely logical to suspect that, at this season of the year, there may be unknown compounds which, on ingestion, obtund the physiological processes of delicate infants, promote metabolic storms and possibly arouse otherwise harmless bacteria into pathologic activity.

$500,000 to Be Raised Before July 1

A plan, world wide in scope, for research into the cause, cure and prevention of deafness has just been announced by the American Otological Society. While a fund of $2,500,000 will eventually be sought to finance the complete plan, an immediate campaign to raise $500,000 by July 1 and thus continue a program of research started through a grant by the Carnegie Corporation four years ago has been started. The campaign was launched at a dinner given at the New York Academy of Medicine by the Board of Trustees of the Research Fund on Tuesday, March 12, to a group of interested laymen and physicians.

"Racial progress marches upon the feet of healthy and instructed children. There should be no child in America that is not born and does not live under sound conditions of health; that does not have full opportunity of education from the beginning to the end of our institutions; that is not free from injurious labor; that does not have every stimulation to accomplish the fullest of its capacities."—President Herbert Hoover.

WHY CERTAIN PATIENTS WITH APPENDICITIS FAIL TO GET WELL*

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There is such a widespread belief amongst the laity, and, I regret to say, amongst certain physicians, that operation for appendicitis, especially of the chronic form, fails to bring about a satisfactory recovery that, there must be a certain basis of fact underlying it.

I have had a moderate experience in this field and have long been interested as to the reasons for such failure.

We will throw out at once those patients, and they are numerous, who have been given a correct diagnosis, but who, because of the half-heartedness or lack of wide experience of their physicians, or their own negligence, have never reached the operating room. They go on with their indigestion, acid eructations, constipation, loss of weight, chloasma (especially the female patients) and debility, and perhaps several years later, after seeing many physicians, reappear. If they have not meanwhile acquired a mucous colitis or a peptic ulcer, it has not been their fault.

This group of patients forms the chief recruiting ground for these two troubles. No surgeon and no physician who stands by the operating table year after year can or will deny this statement if he possess reasonable powers of observation and an unprejudiced mind. In my experience it is the bookish type of medical teacher, or the practitioner who has never seen medicine in its broad outlines rather than the hard-headed and practical clinician, who takes the negative side in this argument. In any event, I have certainly seen scores of cases of gastric and duodenal ulcer proved at operation, in which there was no question of the association of chronic, acid indigestion, distress in the lower right quadrant, and often repeated attacks of mild appendicitis, and which showed at operation a badly diseased appendix, often with concretions, and a chronic peptic ulcer. The frequency of the association of these several factors has made an impression on my mind that no theoretical objections can efface. The surgeons recognize this picture better than do certain physicians. As regards mucous colitis, the evidence may not be quite so direct and convincing, but I believe 90 per cent of the cases on investigation will be found to have had for years, chronic appendicitis, Lane's kink, movable cecum or bands, or membranes in the lower right quadrant, and I regard these troubles as almost necessary antecedents of the colitis.

Many patients fail to reach the surgeon, because of inefficient or inexpert physical examination. As an example, the appendix is located behind the cecum in perhaps 20 per cent of our patients, yet in many cases, because McBurney's point offers little rigidity or tenderness, and no careful examination is made by direct inward pressure far to the right, above the crest of the ilium, for the acute tenderness and very marked rigidity caused by the inflamed and misplaced appendix, the trouble is not found. Failure of rectal or pelvic examination may cause us to miss the pelvic type of appendicitis. Every patient with chronic indigestion, constipation and chloasma should be repeatedly examined before passing up the appendix as the original source of the symptoms.

In too many cases, and I know by experience, actual incorrect diagnosis is the cause of failure to recover full health. We have all seen patients operated upon with a false diagnosis of chronic appendicitis when the true diagnosis turned out to be the gastric crises of tabes, epigastric hernia, renal or ureteral stone, hydronephrosis, peptic ulcer, chronic cholecystitis, retroperitoneal sarcoma, mesenteric lymphadenitis, disease of the uterine adnexa, tubal pregnancy, osteoarthritis, or even tuberculosis of the spine. When the tip of the appendix lies far back, renal stone is suspected in certain cases. In two such the kidney was opened to remove a non-existent stone of which the surgeon

*Read before the Denver County Medical Society, December 4, 1928.

felt confident, in spite of the absence of x-ray evidence, and, in each case the patient recovered promptly under another surgeon when the appendix was removed. An appendix with a distended bulbous tip lying in the hollow of the iliac bone may lead to a diagnosis of actual disease of the pelvic bones. I have known a woman to wear for two months a plaster cast reaching from the dorsal spine to the mid thigh for such a supposed disease. She recovered at once on removal of the guilty appendix.

An occasional cause of incorrect diagnosis is the location of the appendix in the left abdomen, generally from failure of rotation of the ascending colon. Yet, a tentative diagnosis of diverticulitis or acute disease of the left adnexa will commonly lead to operation, and the error is corrected. In one case, Dr. McGraw and I diagnosed a chronic gonorrhoeal pus tube on the left side, in a woman who had recently had this infection, rather wondering at the absence of trouble on the right side. It turned out to be a large, chronic, inflamed appendix adherent to the womb in the left tubal region. The tubes showed no evidence of disease.

Long appendices pointing well to the left, in a few instances adherent in front of the lumbar spine, have given symptoms practically confined to the left abdomen. Yet, in such cases deep palpation gives tenderness to the right of the median line. In a case from Colorado Springs, with very pronounced left-sided symptoms, but with telltale tenderness deep in the abdomen just to the right of the median line, the late Dr. Powers greatly feared that he had not found the real trouble, though he removed a long, subacutely inflamed appendix reaching well toward the left abdomen, and found nothing else upon prolonged search. My next word after the patient returned home was that she had gained 25 pounds, and she has remained well. None of the seven patients with complete transposition of the viscera who have come to my notice has developed appendicitis to my knowledge, so that I have had no experience with removal of such a displaced appendix. Several such cases are reported.

It is easy to mistake tuberculosis of the appendix and cecum for a chronic appendicitis, but I have seen more errors of the contrary type. In Sanatorium patients with tenderness and rigidity in the right lower quadrant, with an ill-defined mass present, and the usual symptoms, we think first of tuberculous disease. Most such patients, in my experience, and there have been many of them, have shown on operation the usual chronic appendicitis. The x-ray examination is commonly sufficient for the final decision. Yet, I have known a young woman to be kept in a sanatorium for tuberculosis for three years under heliotherapy, for what proved to be an ordinary "run of the mill." chronic appendicitis, with prompt recovery after its removal.

More trouble arises in this field, perhaps, from incomplete diagnosis than incorrect diagnosis. The commonest example, due more in this particular case to the surgeon, has been the failure to diagnose and correct a Lane's kink, when removing the appendix. In my cases, which naturally occurred before the trouble was well understood by the average medical man and surgeon, no benefit was derived from the appendectomy. Happily, this trouble is mostly of the past. Even at present, many cases of peptic ulcer, chronic cholecystitis, Treitz's kink, mobile cecum, partial duodenal obstruction, duodenal diverticulum, even malignant disease of other parts of the abdomen, renal and pelvic troubles are overlooked. In my opinion, which I offer with some diffidence to the surgeons, much of this failure of complete diagnosis, with its attendant opportunity for surgical relief, is due to insufficient exploration of the abdomen at the time of operation. From my viewpoint, a surgeon takes upon himself a very grave responsibility when he exposes a patient with chronic digestive disease, especially chronic appendicitis to the danger, expense, discomfort and loss of time incident to an abdominal operation, without taking proper steps in suitable cases to assure himself that the abdominal diagnosis is reasonably complete and certain, and that the appropriate surgical measures have been taken.

Incomplete operation. I have several times made a diagnosis of chronic appendicitis in patients who had been assured by their surgeon (needless to say not a shining light in surgical circles) that the offending organ had been removed. In one case, the skin only had been incised by a fraudulent operator; in several the appendix had never been found, and in two, the free-hanging relatively innocent portion had been removed, while the subperitoneal proximal portion, badly diseased and firmly bound down, remained. In scores of cases a bad Lane's kink or similar accompanying lesion had not been corrected. An ulcer is found at times, and because of that human characteristic, lack of perfect judgment, or because of some emergency much needed surgical help is withheld. We all know of instances where, under the best of conditions, much more could have been done for such patients. Since the influenzal epidemic we have seen an increasing number of cases of mild, chronic appendicitis in which the symptoms have been very marked—notably in the way of subfebrile temperature, emaciation, constipation, indigestion and debility, in which notable mesenteric adenitis is present, often with serous effusion in the peritoneal cavity. We have been able to recognize certain of these cases before operation. The glands are not often tuberculous, according to guinea pig tests. The patients do well after removal of the appendix if rest, milk, cod-liver oil, iron, etc., be used. Dr. L. Freeman has called especial attention to these formerly puzzling cases.

In my opinion, the greatest factor in failure of good results after a correct diagnosis and a proper operation in chronic appendicitis, is the omission on the part of the attendant of advice as to diet and medication after dismissal of the patient from the hospital. In many cases the patient assumes, as he so often does after operation for ulcer, that he is cured and that diet and medication may be forgotten. Probably two-thirds of the patients operated for chronic appendicitis have an unduly high gastric acidity, and this must be treated by means of diet, alkalies, et cetera for many months after operation, that the digestive tract may be brought back to its normal course.

The most certain way to attain a peptic ulcer, next to failure to remove the diseased appendix, is to neglect the post-operative hyperacidity. Constipation and achlorhydria also need long and careful attention. I regularly warn patients to be operated for digestive disease that they must follow a proper diet and, in general, be under medical supervision for many months afterwards.

Adhesions resulting from the chronic inflammatory process in the abdomen, or from the operation interfere in many cases with proper recovery. From my experience, I estimate that one particular type of adhesion blocks the pylorus or duodenum in three or four cases out of each thousand operated for chronic appendicitis. I refer to the catching of the omentum at the site of operation and the drag exerted by it across the regions mentioned. Operation is imperative and generally very satisfactory. Many other types of adhesions, unfortunately, destroy the peristaltic function of portions of the bowel, or cause pain, constipation, or other symptoms. The relief of the common constipation in these cases does more for them than anything, within my knowledge, excepting surgery, to be applied in properly selected cases.

The development of a hernia at the site of the incision or, less frequent, of a right inguinal hernia as the result of the damage from the incision through the abdominal wall, is most unfortunate. Surgical measures are usually necessary.

A well marked visceroptosis may have as an accompaniment a chronically diseased appendix. The falling of the abdominal viscera is based upon a congenital, physical inferiority, not only structural but physiological in nature, and the whole picture must be well considered before recommending operation. The long continued under-nutrition incident to the indigestion which arises from the appendiceal disease is a notable factor for consideration. If operation is decided upon it must be followed by even more necessary measures for the general regeneration of the patient's physical condition. A

bad phlebitis, especially if involving the pelvic veins in its extension upward may well add more to the patient's discomfort than the appendectomy has subtracted. It is a most unfortunate complication and difficult of notable relief.

It has long been recognized that operation for a chronic appendicitis that is only a minor part of a general neurasthenia, never cures the patient. It must not be done until the general health is reasonably restored, if such a thing be possible. Those patients who have contracted the operation habit recover only sufficiently to seek another surgeon for another operation,—in fact, they acquired a mental disease. Yet, certain cases have genuine need of repeated operation. I have seen four operations in one year on a patient who developed obstruction each time, with final, complete recovery lasting now for many years.

Finally, it is very apparent, in my opinion, that a notable part of the improvement in our morbidity and mortality statistics in the past twenty years has been due to the correction of digestive difficulties, by early diagnosis, treatment and operation, so that dangerous and fatal complications and sequelae are avoided. Peptic ulcer, gastric cancer, subphrentic abscess, mucous colitis, and a score of complications connected with neglected digestive troubles are being lessened in frequency, or in severity, or both. No more important nor fruitful field for our exertions can be found than that which we consider tonight.

RIEDEL'S CHRONIC THYROIDITIS*

(with report of two cases)

GEORGE B. KENT, M.D.
DENVER

Riedel in 1896 described for the first time a "chronic inflammation of the thyroid gland leading to the formation of an iron hard tumor," at that time reporting two cases observed during the year and one encountered in 1883, from which cases he derived the inspiration and clinical data for his paper. This distinct entity he designated as "Chronic Strumitis" which implies a chronic inflammation superimposed upon a goitrous condition of the affected thyroid. Believing such a condition to be merely incidental as is concomitant regional tuberculosis or syphilis, and basing my opinion upon a careful survey of the available literature upon the subject, I have purposely placed my article under the heading of "Riedel's Chronic Thyroiditis." Since 1896 many authors have reported cases and have discussed the subject under various titles, as: Eisenharte Strumitis, Ligneous Thyroiditis, Struma Lymphomatosa, Canceriform Thyroiditis, Woody Thyroiditis, Riedel's Disease, etc. Berry reported cases observed in 1883, 1898, 1899, and 1921, all of which were diagnosed clinically as malignant. In 1898 Jeannel reported a case of Eisenharte Strumitis which he had previously diagnosed as cancer of the thyroid. The same year Tailhefer reported a similar case. In 1901 Rickard, and, Poncet and Leriche reported cases with similar clinical histories and operative findings. Since 1910 the subject has excited especial interest among clinicians.

The exact cause of chronic inflammation of the thyroid of Riedel's type is unknown. It occurs in younger people usually between the ages of 30 and 40. Men are more often afflicted with it than women. Infection either local or general has been found accompanying this disease and has been considered as an etiologic factor. Of the local infections—abscessed teeth, infected sinuses, or tonsils, have been mentioned. Of the general infections, tuberculosis, and syphilis have been found as concomitant conditions. Nicholson states that the etiology of ligneous thyroiditis is generally although not always, tuberculosis, stating also that the 86 cases of Coulcud (Bull, et Mem. de la Soc. méd. des Hop. de Paris, Dec. 23, 1920) and those of the third group of Plummer and

*Read before the Pueblo County Medical Society, Pueblo, Colo., Oct. 16, 1928.

Broders (Minn. Medicine, June, 1920) seemed to correspond to woody thyroiditis, although not so characterized by the authors. However, most authorities look upon tuberculosis and syphilis merely as accompanying conditions, the disease affecting as a rule young individuals who have been in perfect health previously, with no typhoid, pneumonia, scarlet fever, or any other infectious disease, either general or local. The disease develops rather rapidly in a few weeks or months. There are no certain known predisposing or exciting causes of this disease.

The subjective symptoms usually occur rather early, the inflammation starting as a general involvement of the gland, or in a portion of one lobe, rapidly becoming diffuse. One of the first is dyspnoea which becomes rapidly worse and may necessitate a tracheotomy for relief. The dyspnoea is caused by the marked reduction in the calibre of the trachea owing to the contraction of the fibrous tissue arising in the two lobes and the isthmus of the thyroid. The trachea is in its normal position unless there has been a nodular thyroid previously. The dyspnoea increases with suffocative attacks occurring particularly at night. Because of the early involvement of the recurrent laryngeal nerves there may be dysphonia or aphonia, with occasional dysphagia. Pain is rare, but there is often a sense of soreness and the gland is usually tender to palpation. The early cases are frequently without symptoms, but since the inflammation rapidly extends over the entire gland, causing dense adhesions to the surrounding structures, the resultant increasing dyspnoea causes the patient to seek relief before long. The gland becomes fixed to the trachea, carotid sheaths, recurrent nerves, prethyroidal muscles, and other adjacent structures making it almost impossible to find a plane of cleavage. The general health is usually good, and the medical history without special moment. There is seldom evidence of hypo or hyperthyroidism.

Physical examination reveals an extremely hard tumor in the region of the thyroid gland. It has been likened by various observers to iron, stone, wood, cartilage, or bone. It is usually smooth but a definite outline is hard to make out owing to the infiltration into the surrounding structures. There is not the normal mobility and the



Figure 1—Neck, Case No. 1.

thyroid cartilage makes very little motion during the act of deglutition. No bruit or thrill is noted over the poles of the thyroid. There is no pyrexia, and a general clinical examination reveals no special abnormality. The clinical picture resembles somewhat that of cancer of the thyroid, and most of cases hitherto have been diagnosed as malignant disease. In advanced cases x-ray examination will show a reduction in the calibre of the trachea. All the symptoms taken together give to the disease a distinct picture which differs from that of malignancy of the thyroid. The extreme hardness, the regularity of surface, the uncertain boundary, the total involvement of the gland in the later cases, give one the impression of chronic thyroiditis, especially if it occurs in young individuals and has progressed rapidly causing early dyspnoeic symptoms out of all proportion to the size of the tumor. The only complications are those due to increasing contraction of the fibrous tissue in this location. The most serious are: increasing dyspnoea, leading to eventual suf-

focation, cyanosis of the head and neck due to the constriction of the veins returning from these parts, and involvement of the



Figure 2—One lobe of thyroid, Case No. 1.

recurrent laryngeal nerves causing hoarseness, cough, or even loss of voice.

The most successful treatment at present is surgical. A small operation like a cuneiform resection of the isthmus of the thyroid has been followed by complete recovery, according to some observers. In the two cases reported herewith a radical operation was done in both without injury to any important structure in the neck. The operation itself is very difficult owing to the absence of any plane of cleavage. Other observers have reported retrogression of the tumor following x-ray treatment of the tumor mass. Although x-ray therapy might conceivably retard the inflammation, this method of treatment would hardly appeal to a surgeon as we know that scar tissue follows x-ray exposure to any tissue of the body, and that the characteristic symptoms are caused by contraction of fibrous tissue already present.

Prognosis as to cure is good providing enough of the fibrous mass is removed so that further constriction of the trachea is obviated. It is impossible to find the mortality rate in this disease following operation, but it should not be any more than that for exophthalmic goitre. The cause of death in any case would be the same as in an operation for goitre with the exception of thyroid crisis following operation which would not obtain. If treatment is not available, the only alternative is death by suffocation, although some observers have reported cases of spontaneous retrogression. Enough of the thyroid parenchyma may be removed by operation or eventually destroyed by this disease to necessitate the administration of thyroid extract. The dosage should be governed by repeated basal metabolic rates.

The pathologic appearance of the excised tumor is quite characteristic. The thyroid gland is transformed into an extremely hard, fibrous mass, white to light cream in color. If a goitre has existed prior to the inflammation, it becomes imbedded in the fibrous mass. The cut surface is dry, some irregular areas glisten, other more regular areas have the appearance of rather pale, glandular tissue.

The study and interpretation of the histogenesis in Riedel's Struma are well given by A. F. Bernard Shaw and R. P. Smith.

To quote from these authors: "The early stage is characterized by a diffuse round-cell infiltration and the formation of numerous lymph-follicles with prominent germ-centers. The cells of the infiltration are lymphocytes, plasma cells, and some phagocytes, all lodged in a delicate reticulum of



Figure 3—Section showing typical area of more fibrous portion of thyroid of Case No. 1, exhibiting but few acini; widely separated by new connective tissue, through which run older hyalinizing strands, and in which a few lymphocytes, a few plasma cells and rare polymorphonuclear leucocytes are present. The acini surviving the fibrous invasion are irregular in size and shape, are lined with rather flat cuboidal cells, and a few are apparently distended with colloid.

collagen fibrils and fibroblasts poorly supplied with blood. At first there is little reduction in the amount of parenchyma. A variable number of the acini are filled with colloid and lined by fairly normal cells, but in the majority the vesicular structure is lost. The colloid has disappeared; the cells are hypertrophied, and show all the signs of



Figure 4—Both lobes of thyroid, Case No. 2.

increased functional activity. Cellular degeneration proceeds simultaneously with hyperplasia, and the debris is removed by phagocytosis. The altered cells on detachment from the acinar wall often fuse together, perhaps round a droplet of colloid, to form giant cells which are eventually removed. These formations have rarely been described, but are mentioned by Hashimoto and Monod. They have been mistaken for tubercle giant cells (Wilke). Numerous in the earlier stages of the disease, they disappear as fibrosis advances. With progressive glandular destruction fibrosis appears, and all stages can be traced to its formation. The sclerous tissue early undergoes hyaline change, and gradually replaces the atrophic acini, the round-cell infiltration, and the lymph-follicles. The germ-centers of the latter persist for some time, and their inclusion in the hyaline fibrous strands produces a picture very like carcinoma. Epithelial hypertrophy is now more evident, and in addition adenomatous foci of compensatory regeneration develop. They form rounded nodules sometimes visible to the naked eye in histological sections. Vesiculation is absent, the mass being formed of solid acini of large cells with prominent, sometimes lobulated, nuclei occasionally in mitosis. There is no cellular infiltration in these foci, and the stroma is similar to normal thyroid. The general structure and arrangement of the nodules leave no doubt as to their nature, and is in conformity with the fact that glandular hyperplasia is readily induced in the thyroid. Hyperplasia seems to have been observed by Silatschek, though he gave it another interpretation, and it is briefly mentioned by Monod, and by Delore and Alamartine. It probably accounts for the pathological diagnosis of carcinoma (Silatschek, Balfour). The change is similar to the compensatory regeneration which takes place in cirrhosis of the liver, and which sometimes passes over into carcinoma. From analogy it is reasonable to imagine that such an event might occur in the hyperplastic nodules of Riedel's struma, but up to the present we have no evidence of this transformation. The absence of myxoedema even with a very cirrhotic gland can only be explained by the glandular hyperplasia, though no doubt in cases in which only a part of the gland is diseased the remainder provides sufficient secretion. Indeed, the glands in Myxoedema and in advanced Riedel's struma are very similar, the only essential difference being the glandular hyperplasia in the latter. The remarkable hardness of the gland cannot be explained by fibrosis alone,

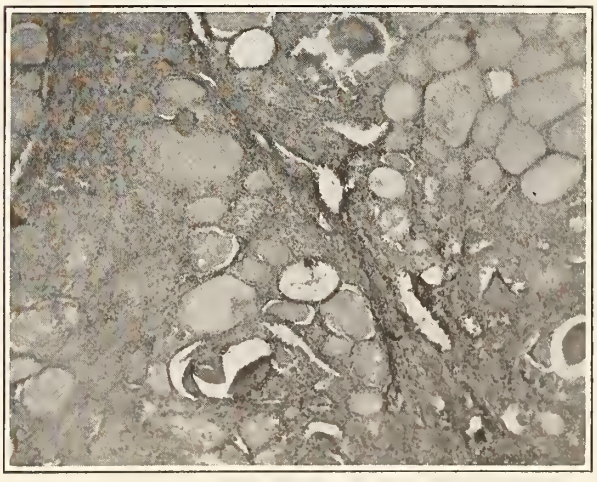


Figure 5—Section through typical area of more acinous portion of thyroid of Case No. 2, showing acini, hyalinizing strand of connective tissue, and some areas of fibroblasts and small, round cells.

as the highly cellular tissue of the early stage produces the same physical change. In the cases described by Riedel and others no mention is made of diffuse cellular infiltration and lymph-follicles. The gland was very cirrhotic and contained foci of round cells and a few vesicles. But in 1912 Hashimoto described four cases of uniform enlargement without symptoms.

He considered them as forming a distinct entity-'struma lymphomatosa'-unrelated to Riedel's disease. Ewing, however, has pointed out that Hashimoto and Riedel were describing the early and late stages of the same process.

The pathogenesis of the early stage requires an interpretation. The infiltration with its numerous lymph-follicles certainly resembles lymphoid tissue very closely. But there are several difficulties in accepting the view that the tissue is pure lymphoid overgrowth. In the first place, lymph-follicles are known to develop where there is chronic inflammation, viz., Fallopian tube, gall-bladder, endometrium.

Moreover, lymphoid foci may develop in various affections of the thyroid, but more especially in Grave's disease, a condition in which the gland-cells are active. In Riedel's struma the gland-cells are also active, and the presence of lymph-follicles is probably to be associated with this state. Their number and size tend, however, to divert attention from the other changes which we believe, are essentially a chronic inflammatory process. Lastly, the extension of the process outside the capsule, spontaneous recession of the tumor, and retrogression after imperfect removal are all clinical features more in favor of an inflammatory process than an involuntary change followed by simple lymphoid overgrowth. Thickening of the arteries of the gland is common, particularly in advanced cases. Some have thought this may be due to syphilis, but there is nothing to support the idea. Either the age of the patient or the sclerotic condition of the gland is sufficient explanation."



Figure 6—Section through more fibrous area of thyroid of Case No. 2, showing new fibrous tissue invading and widening the spaces between the acini while round cell infiltration, giant cells and hyalinized connective tissue testify to the chronicity of the infection.

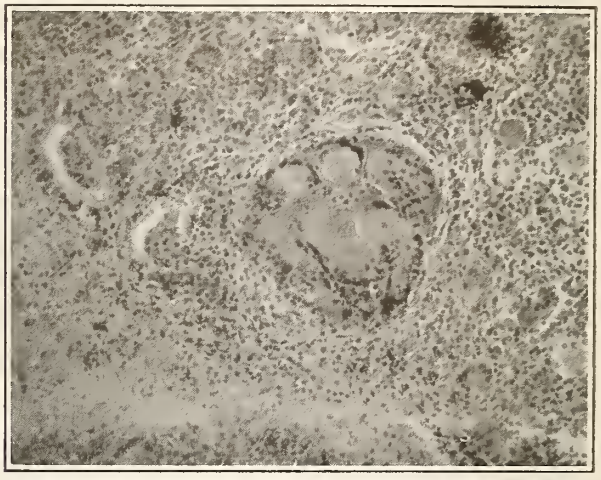


Figure 7 — Section of higher magnification through thyroid of Case No. 2, showing young giant cells of Langhans, new fibrous tissue with hyalinized strands, and small, round cell infiltration.

CASE REPORTS

Case No. 1: Mrs. E. L. C., age 25, called at the office March 8, 1926. The family, marital, and menstrual histories were essentially negative. There was no history of any disease of serious character. The chief complaint was "hurting in the neck" of five months' duration. In November, 1925, patient had a sore throat followed by an enlargement of the neck. There had been no change in the size of the neck since, there being no fluctuation in size during menstruation, or when fatigued. She lost ten pounds in weight during December, 1925, but had regained normal weight. She said that she was not nervous, that she had a ravenous appetite, but that she was weak in the knees upon going upstairs. She was gaining weight, her skin was dry, and she had no palpitation of the heart. She had been constipated for the past two years, taking a cathartic on an average of twice a week. She had neither heart nor lung trouble, and there was no history of gastro-intestinal or genito-urinary upset.

Physical examination showed a healthy appearing woman, 5′ 5″ tall; with a rather smooth bilateral enlargement of the thyroid. Her normal weight was stated to be 134 pounds; her present weight the same. Her voice was slightly harsh,

but an examination of the vocal cords was not made. Blood pressure, systolic 120, diastolic 80, pulse 80, temperature 98.6. There were many crowned and filled teeth, and her tonsils appeared chronically infected. Right lobe of the thyroid approximately 2"x¾", left lobe smaller, 1½" by ¾". To palpation the gland was extremely hard, both lobes feeling almost like stone, and apparently fixed to the trachea. There was no bruit or thrill, no tremor; her skin was apparently dry, hair normal; there was appreciable quadriceps loss. The remainder of the physical examination was essentially negative. Urine examination was negative; examination of blood showed 90 per cent hemoglobin, 5,200,000 erythrocytes, 7,800 leucocytes. The basal metabolic rate March 9, 1926, was plus 12 per cent. X-ray of the chest (Drs. Newcomer and Conyer) showed no evidence of substernal goitre, nor carcinoma in the chest.

Diagnosis—Riedel's Chronic Strumitis.

Recommendation—Operation.

Operation March 13, 1926. Partial thyroidectomy was done through a low necklace incision. There were dense adhesions throughout the neck. It was impossible to find any plane of cleavage. The left lobe was exposed and found to be filled with small adenomata. Almost the entire left lobe was removed. After considerable difficulty the right lobe was exposed, it was as hard as a piece of wood; about two-thirds of this lobe was removed. The trachea was laid bare, and was found to be about two-thirds normal size. The tracheal rings were very indistinct, due to the pressure of the fibrous tissue. The right carotid artery and vein were laid bare for a distance of about five cm. A plain gauze pack was inserted at each side of the trachea, and the wound was closed in the usual manner with interrupted plain catgut, and dermol sutures.

Post-operative history—Convalescence was uneventful. Patient remains perfectly well except for an increase in weight, for which she was given one grain of thyroid extract daily which seems to keep her in a normal condition. Basal metabolic rate August 5, 1927, was minus 5 per cent.

Pathological report—Gross examination—Specimen consists of two portions from the thyroid gland One is of irregular shape and very firm consistence, measuring 2½"x1½"x1". It is pale in color and fibrous in appearance, bearing no resemblance to normal thyroid tissue. The anterior surface is nodular and rough; the posterior surface shows a white fibrous plane where it was removed from the rest of the gland. The other portion measures 2"x1½"x1". The anterior surface is covered by a roughened capsule. Cross section of each lobe reveals a pale reddish translucent surface. Bands of white are seen surrounding irregular areas of grayish red color.

Microscopic examination—Sections through the larger portion exhibit dense ramifying strands of hyalinizing connective tissue surrounded by newer fibrous tissue in which there are varying degrees of small cell infiltration; in some areas small lymphocytes predominate, in others plasma cells are more abundant. At the extreme end of the section are a few dilated, widely separated acini filled with colloid, and lined with a single layer of flattened epithelium. These acini are very irregular in size and shape. Section through the smaller portion reveal a predominance of such acini as are described above, with very little secreting parenchyma.

Diagnosis—Riedel's Chronic Strumitis.

Case No. 2. Mrs. M. A. S., age 32, was referred to me October 16, 1926, by Dr. Hugh Taylor of Denver, and Dr. J. W. Wells of Brighton, Colo. Her father died of heart trouble at the age of 59; one paternal great aunt died of cancer; paternal grandmother died of pulmonary tuberculosis. Otherwise her family history was negative. She had been married nine years, had four children living and well; her husband was healthy. Her menstrual history was negative, she had had the ordinary diseases of childhood and influenza in 1918; appendectomy and bilateral salpingectomy by Dr. Hugh Taylor, October 11, 1926.

Her chief complaint was "Goitre" of two months' duration. She first noticed a small hard lump the size of a peanut which appeared on the left side of the neck. Three weeks later the lump went down and another, a little larger, appeared on the right side of the neck. She has had pain in the anterior part of the neck most of the time, accompanied by a choking sensation which has occasioned a moderate insomnia. She has had some palpitation of the heart the past two months, has been short-winded, had trembling hands, was easily fatigued, and perspired a great deal. She had been nervous for years, but more so the past two months. She gets the blues, and has been more irritable the past two months, crying over nothing. She has had neither lung nor heart trouble other than palpitation the past two months. There has been no gastro-intestinal upsets. She has had nocturia once or twice, and her legs have swollen off and on for the past year since her last baby was born. She had lost five pounds during the past two months.

Physical examination was done while the patient was in bed at the Mercy Hospital, Denver, six days following appendectomy and bilateral salpingectomy by Dr. Hugh Taylor. Examination showed a healthy appearing young woman lying in bed recovering from a recent operation. Her height was 5" 2", normal weight 138 pounds, present weight 110 pounds, blood pressure—systolic 132, diastolic 80, pulse 100, temperature 98.6. The ear, nose and throat examinations were negative, except for several filled teeth. The thyroid showed a symmetrical bilateral enlargement; both lobes were very hard to palpation, seeming almost as hard as stone. Both lobes were somewhat nodular; no bruit or thrill (size of lobes not noted). Otherwise the physical examination was essentially negative. Abdomen and pelvis not examined owing to recent operation. Urine and blood examinations were negative. Basal metabolic rate not taken.

Diagnosis—Multiple adenoma of thyroid with mild hyperthyroidism 50 per cent, chronic strumitis 50 per cent.

Recommendation—Operation advised.

Operation October 18, 1926. Bilateral resection of a portion of both lobes and the isthmus was done through a low necklace incision. The prethyroidal muscles were cut on each side. A very small amount of gland tissue was preserved on each side. Inspection and palpation of the gland after it was exposed showed the upper half of the right lobe to be hard, white, sclerotic, almost bloodless; it was so hard that a clamp would crush through the substance. The left lobe showed the same condition at an earlier stage, mostly confined to the middle and lower portions. Operation was comparatively easy, due to the fact that the chronic inflammation was quite early. The husband was advised that the patient might have to take thyroid extract the remainder of her life, due to the fact that the greater portion of the thyroid was destroyed by the chronic inflammation. The postoperative convalescence was uneventful.

Her basal metabolic rate January 3, 1927, was minus 21 per cent—she complained of puffiness

of face, hands and feet. There was no definite edema. Thyroid extract grain 1, twice a day, was given which has kept her within normal limits since. The patient was last seen at the office February 20, 1928, apparently quite well.

Pathological report—Gross examination. Specimen consists of two portions of thyroid gland, each measuring 2½"x1½"x1". The external surface is smooth, the consistence firm. On the upper pole of each lobe is a firm nodular elevation ¾" in diameter. Cross sections reveal white areas of fibrous structure interlacing grayish areas presenting the appearance of altered gland parenchyma.

Microscopic examination—Sections through more fibrous areas of both lobes reveal but little of the parenchyma of the gland, remaining as a few small acini of irregular size, some small ones lined with large cuboidal cells, larger ones by flattened epithelium with one or more Langhaus giant cells grouped around the lumen. The structure is predominately fibrous—in some areas practically entirely hyalinized, in others hyalinized strands are surrounded by large areas of fibroblasts in which many small, round cells, a few plasma cells, and an occasional polymorphonuclear leucocyte are found. Sections through the more acinous portions reveal hyalinizing strands of connective tissue surrounded by fibroblasts mixed with small, round cells running between many acini of irregular size, some lined with heaped cuboidal cells, some by flattened epithelium and apparently distended with colloid.

Diagnosis—Chronic Strumitis.

***RESUME OF CASES REPORTED SINCE 1896**

(1) Riedel—1883—Male, age 42. Diffuse inflammation of six months. Symptoms—dyspnoea. Invasion of carotid sheaths of both sides. Clinical diagnosis—malignancy. Biopsy with diagnosis of chronic inflammation. Tumor receded. Dyspnoea disappeared in six months. Patient died fifteen months later of nephritis.

(2) Riedel—1896—Female, age 23. Diffuse inflammation for one year. Symptoms—Dyspnoea and dysphagia. Adherence to vessels and nerves both sides. Clinical diagnosis—malignancy. Small portion removed. Diagnosis—Chronic inflammation. Dyspnoea relieved. Patient died two months later of embolism (?).

(3) Reidel—1896—Male, age 29. Right lobe becoming diffuse in six weeks. Symptoms—Dyspnoea. Adherence to vessels and nerves both sides. Clinical diagnosis—Chronic inflammation. Small portion removed with no relief. Six months later another small portion removed. Diagnosis—Fibro sarcoma. Return twelve years later with dyspnoea and subglotic stenosis. No trace of goitre.

(4) Berry—1893 (Bowlby's case)—Female, age 42. Diffuse inflammation for three years. Symptoms—Dyspnoea, dysphagia, and dysphonia. Adherence to muscles, nerves, gullet, and trachea. Clinical diagnosis—Malignancy. Division of isthmus, tracheotomy, biopsy with diagnosis of chronic inflammation. Died shortly after tracheotomy.

(5) Berry—1898—Female, age 40. Right lobe involvement for five weeks. Symptoms—Shooting pains in neck. Gland not adherent. Clinical diagnosis—Probably malignancy. Right lobe removed with diagnosis—Chronic inflammation. Patient alive and well two years later.

(6) Berry—1899—Female, age 63. Symptomless diffuse enlargement for many years. Symptoms—Dyspnoea for two years. Adherence to trachea, left carotid, and the skin. Clinical diagnosis—Inflammation or malignancy. Inoperable. Tracheotomy. Patient died six days later of septic pneumonia. Post-mortem revealed—Chronic inflammation of thyroid.

(7) Berry—1921—Female, age 46. Hazlenut nodule right lobe for two months. Symptoms—Moderate pain right side of neck. No adherence. Clinical diagnosis—Cyst or malignancy. Right lobe removed with diagnosis—Chronic inflammation. Patient cured.

(8) Tailhefer—1898—Male, age 30. Enlarged left lobe three months. Symptoms—Aphonia. Adherence to left carotid sheath and extension to base of skull. Clinical diagnosis—Cancer. Small portion removed. Diagnosis—Chronic inflammation. Patient had secondary hemorrhage from carotid with a hemoplegia. Tumor had disappeared one year later.

(9) Ricard—1901—Male, age not stated. Involvement left lobe. Symptoms—Dyspnoea, dysphagia, and dysphonia. Adherence to muscles, vessels vagus, gullet, trachea, and clavicle. Clinical diagnosis—Cancer. Removed piece-meal. Injured thoracic duct. Diagnosis—Fibrous degeneration. Recovery.

(10) Hashimoto—1905—Female, age 55. Diffuse involvement for four weeks. Symptoms—Slight dysphagia, and dysphonia. No adherence. Clinical diagnosis—Struma fibrosa. Complete removal with diagnosis—Struma lymphomatosa. Well two years later.

(11) Hashimoto—1907—Female, age 61. Diffuse involvement for seven months. Symptomless. No adherence. Clinical diagnosis—Parenchymatous goitre. Complete removal. Diagnosis—Struma lymphomatosa. Well four years later.

(12) Hashimoto—1907—Female, age 45. Diffuse for three weeks. Symptomless. Adherence at base. Clinical diagnosis—Struma fibrosa. Complete removal. Diagnosis—Struma lymphomatosa. Well four years later.

(13) Hashimoto—1909—Female, age 40. Diffuse for six weeks. Symptoms—Slight dysphonia. No adherence. Clinical diagnosis—Malignancy. Complete removal with diagnosis—Struma lymphomatosa. Well two years later.

(14) St. George—1905—Female, age 45. Diffuse for four months. Symptoms—Dyspnoea. Adherent to trachea. No clinical diagnosis. Tracheotomy. Diagnosis—Chronic inflammation. Patient died from erysipelas and hemorrhage.

(15) St. George—1905—Male, age 25. Involvement of right lobe for three months. Symptoms—Dyspnoea and dysphagia. Adherence to trachea, gullet, right recurrent nerve, and clavicle. No clinical diagnosis. Removal right lobe. Diagnosis—Chronic inflammation. Well four years later.

(16) St. George—1922—Male, age 31 (author himself). Involvement of right lobe for five months. Symptoms—Dyspnoea and dysphagia. Adherence to muscles and trachea. Clinical diagnosis—Calcified adenoma. Right lobe removed. Diagnosis—Chronic inflammation. Well one year later.

(17) Silatschek—1908—Male, age 32. Involvement of right lobe for eighteen months. Spreading through rest of gland. Symptoms—Periodic dyspnoea and aphonia. Fluctuation in size. Adherence to surrounding parts. Clinical diagnosis—Malignancy. Biopsy diagnosis—Cancer. Subsequent, chronic inflammation. Tumor disappeared entirely seven months later.

(18) Spannaus—1909—Male, age 32. Symptomless. Goitre for seven years. Symptoms—Dyspnoea and dysphonia for six months. Adherence to vessels, vagus, gullet, and trachea. No clinical diagnosis. Part of left lobe removed. Diagnosis—Chronic inflammation. Tumor disappeared entirely two months later.

(19) Delore and Almartine—1911—Male, age 39. Involvement right lobe five months. Symptoms—Dysphagia and dysphonia with pain in right side of head. Adherence to muscles, vessels, trachea, right recurrent nerve, carotid,—infiltrated and softened. Clinical diagnosis—Malignancy. Right lobe removed. Diagnosis—Chronic inflammation. Patient died of hemorrhage four days later.

(20) Poncet and Leriche—1912—Male, age 60. Involvement isthmus six months, spreading to whole gland. Symptoms—Dyspnoea. Gland fixed. No clinical diagnosis. Isthmus divided. Diagnosis—Cirrhosis. Thyroid normal one month.

(21) Murray—1912—Male, age 23. Diffuse involvement for eighteen months. Symptoms—Dyspnoea. Paroxysmal stridor and dysphonia. Adherence to trachea and surrounding tissues. Clinical diagnosis—Probable malignancy. Isthmus and both lobes removed. Diagnosis—Riedel's chronic strumitis. Patient well, taking thyroid tablets for myxoedema.

(22) Balfour—1918—Female, age not stated. Diffuse involvement. Symptoms—Tracheal pressure. Gland fixed. Clinical diagnosis—Cancer. Inoperable. Final diagnosis—Cancer. But patient well seven years later.

(23) Monod—1921—Female, age 30. Involvement five months spreading over whole gland. Symptoms—Dyspnoea, dysphagia, and dysphonia. Diffuse infiltration of neck and upper mediastinum. Clinical diagnosis—Malignancy, then cellulitis. Biopsy—then tracheotomy. Diagnosis—Riedel's disease. Patient died some weeks after tracheotomy.

(24) Nicholson—1921—Female, age 38. Involvement right lobe six weeks spreading over whole gland. Symptoms—Painful swelling of neck with headache. No adherence. Clinical diagnosis—Exophthalmic goitre, then cancer. Bilateral resection. Diagnosis—Woody thyroiditis. Patient was well two months later.

(25) Bohan—1924—Female, age 38. Diffuse involvement four months. Symptoms—Dyspnoea and dysphagia. Cough, and pain in neck. Adherent to trachea. Clinical diagnosis—Malignancy, or acute thyroiditis. Isthmus and right lobe removed. Diagnosis—Chronic Inflammation. Later tracheotomy, and some time after removal of septic teeth.

(26) Hahn—1925—Female, age 55. Improvement right lobe nine weeks. Symptoms—Slightly painful swelling of neck. No adherence. No clinical diagnosis. Resection right lobe. Diagnosis—Chronic inflammation. Well when last seen.

(27) Shaw and Smith—1925—Female, age 32. Hard, painful nodule right lobe six months. Symptoms—Enlargement of this nodule. No adherence. No clinical diagnosis. Excision of nodule. Diagnosis—Fibrosed thyroid tissue. Patient well two and one-half years later.

(28) Shaw and Smith—1925—Female, age 55. Involvement right lobe. Symptoms—Dyspnoea and dysphagia. No adherence. Clinical diagnosis—Adenomatous goitre. Excision right lobe. Diagnosis—Riedel's chronic strumitis. Patient well one year later.

(29) Shaw and Smith—1925—Female, age 47. Diffuse involvement for fifteen months. Symptoms—Dyspnoea on exertion, dysphagia, and aphonia. No adherence. Clinical diagnosis—Malignancy. Right lobe, then isthmus, then left lobe excised. Diagnosis—Riedel's chronic strumitis. Swelling and dyspnoea increasing when reported.

(30) Shaw and Smith—1925—Female, age 58. Diffuse involvement four years. Dyspnoea and aphonia. Adherence to trachea and surrounding tissue. Clinical diagnosis—Malignancy. Total thyroidectomy. Diagnosis—Riedel's chronic strumitis. Well two and one-half years later.

(31) Shaw and Smith—1925—Female, age 46. Diffuse involvement for ten months. Symptoms—dyspnoea, suffocative attacks, adherence to trachea. Clinical diagnosis—Cancer of thyroid. Total extirpation. Diagnosis—Riedel's chronic strumitis. Well three years later.

(32) Gruenberg—1926—Female, age 40. Involvement of isthmus for many years. Symptoms—Dyspnoea, and palpitation. Adherence to trachea and surrounding tissues. Clinical diagnosis—Chronic inflammation. Bilateral resection. Diagnosis—Riedel's chronic strumitis. Well after several weeks.

(33) Perman and Wahlgren—1927—Female, age 33. Involvement right lobe six months, spreading over whole gland. Symptoms—Dyspnoea. Adherence to trachea and soft parts of neck. Clinical diagnosis—Chronic inflammation. Excision of nodule, then bilateral resection. Diagnosis—Riedel's chronic strumitis. Patient well, necessary to administer thyroid tablets.

(34) Mallet—Guy, Barbier and Heitz—1928—Male, age 38. Involvement in anterior part of neck for one year, becoming diffuse. Painful hard swelling. No clinical diagnosis. Adherent at base. Bilateral resection. Diagnosis—Riedel's chronic strumitis. Patient well.

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*Note: The above summary is not comprehensive of all cases reported, because, a few of the periodicals publishing discussions and case reports of Riedel's chronic strumitis were not available, because, in many articles the cases were reported as such with a paucity of clinical data; and because, many of the cases so reported evidenced destruction of the thyroid parenchyma by an acute suppurative process.

BIBLIOGRAPHY

Balfour. Collected Papers of Mayo Clinic, 1918, X 373.

Berry. Brit. Jour. Surg. 1921, XXXII, 413.

Bohan. Med. Clinics of North Am., 1924, VII. 1069.

Delore and Alamartine. Rev. de Chir., 1911, XLIV 1.

Delore and Alamartine. Lyon Med., 1911, CXVI, 177.

DeGuervain. Mitt. a. d. grenzegeb d. Med. u. Chir. Suppl., 1904, 1, 65.

Duttman Munchener, Med. Wochenschrift, Jan., 1925, 71, 105.

Ferrari. Rassegna d'Ostetrica e Ginecologia, 1927, 36, 78, 93.

Gruenberg. Frkfrt. Zeitschrift f. Path., 1926, 33, 228, 236.

Hahn. Arch. f. Klin Chir., 1925, 136, 549, 554.

Hashimoto. Arch. f. Klin Chir., 1912, XCVII, 219.

Huebschmann. Zeigler's Beitrage, 1921, LXIX. 342.

Mallet. Guy, Barbier & Heitz, Lyon Med., 1928, 141, 350, 353.

Monod. G. & R. Jour. de Chir.

Murry. London Lancet, 1912, 1188.

Nicholson. Canadian Med. Jour. 1921, XI, 742.

Perman and Wahlgren. F. Acta Chir. Scand., 1927, 61, 535, 542.
Poncet et Leriche. Bull. et Mem. Soc. de Chir., 1901, XXVII, 863.
Ricard. Bull. et Mem. Soc. de Chir., 1901, XXVII, 863.
Riedel. Verhandl de Deut. Gesells f. Chir., 1896, XXV, 101.
Riedel. Verhandl de Deut. Gesells f. Chir., 1897, XXVI, 127.
Searls and Bartlett. Cali. and Western Med., 1926, 24.
Shaw and Smith. Brit. Jour. Surg., 1925, 13, 93, 108.
Silatscheck. Beitr. zur Klin. Chir., 1910, LXVII, 590.
Spannaus. Beitr. zur Klin. Chir., 1910, LXX, 611.
Tailhefer. Rev. de Chir., 1898, XVIII, 234.
Wilke. Virchows Arch., 1913, CCXI, 165.

STATISTICAL SURVEY OF PATIENTS FROM WELD COUNTY TREATED AT THE COLORADO PSYCHOPATHIC HOSPITAL

(A follow-up study of all cases admitted to the Colorado Psychopathic Hospital from Weld County for the period of February 16, 1925, to October 1, 1928)

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I

This survey was started mainly in order to determine whether a large enough percent of replies to questionnaires could be obtained to make a general follow-up program by means of the questionnaire worth while. We have been anxious from the date of the opening of this hospital to secure adequate data on patients after they have left the hospital concerning the results of treatment given here. This is an absolute necessity if we are ever accurately to evaluate the results of treatment and to estimate of what value this hospital has been to the state at large.

It seemed possible also that we might obtain sufficient data to justify a comparison between the immediate results of hospital treatment and late results as represented by the present status of our patients. The object of this would be to establish better criteria for prognosis in similar cases in the future, and to gain some knowledge of the effect of the type of disposition on leaving the hospital in relation to the final outcome of the case.

This is a preliminary report of our general follow-up program, the purpose of publication of which at the present time is to organize a plan for analysis of our late results of treatment after the follow-up program has been extended to cover all admissions; as well as, to acquaint the medical profession and the general public of Colorado with what is actually being done for patients treated at their Psychopathic Hospital.

Incidental to this study, it has been possible to analyze the types of cases sent here with the view of determining whether the Psychopathic Hospital is being utilized by the state to best advantage.

II

Source of Material

The material for this study is drawn from the hospital records of all admissions from Weld County to this hospital from the date of its opening on February 16, 1925, up to October 1, 1928. The Weld County admissions were selected because they represent a small group (a total of 83 cases) including a wide variety of material. This county also represents in general the conditions existing over the state at large rather than the special conditions obtaining in Denver County.

III

Plan of Approach

The questionnaire method was utilized because of the impossibility of personal contact with a group of patients scattered over so wide a territory and relatively so inaccessible as are most of those coming to us from the outlying districts of the state; also the questionnaire method represents a great economy of procedure. The actual cost of this study per patient was less than 8 cents, whereas personal contact would have represented an excessive outlay. A facsimile of the questionnaire used is reproduced here (figure No. 1).

A mimeographed letter and a questionnaire were sent out to the relatives of every patient in the group. This was followed in a

FIGURE 1

FOLLOW-UP QUESTIONNAIRE

Case No._____ Date_____

1. Name_____ Age_____ Sex_____ Diagnosis_____
Hospital residence from_____ to_____

II. Interval History: (a) Economic.
Has patient worked?_____. If so, where?_____
Kind of employment_____ Salary_____
Continuous or intermittent employment_____
Satisfactory work?_____
About how much money has patient earned?_____
Additional data?_____

(b) Social.
Any improvement in outlets_____ Church?_____ Dances?_____
Parties?_____ Recreations?_____ (Specify)_____ Athletics?_____
Any change in civil or social status? (Marriage, divorce, army, navy)_____

(c) Physical.
Any diseases or injuries with duration, treatment and outcome?_____

(d) Special Strain or Worries.
Any special difficulties encountered by patient?_____
How did patient meet them?_____

(e) Additional information.
Anything of significance not covered by the above?_____

III. Present Status:
(a) Is patient now living?_____ (If not) Date of death?_____
Mental condition at that time?_____
Autopsy Report?_____
(b) Present physical condition?_____
(c) Present mental condition_____
(d) Serology (If available)? 1. Blood Wassermann?_____
2. Spinal fluid (1) Cells_____ Sugar_____ Gold curve_____
Protein_____ Wassermann_____
(e) Other laboratory findings if significant?_____

IV. Change of address of patient?_____

V. Is patient now in any hospital, sanitarium, etc.?_____
Questionnaire filled out by:
_____
(Relation to patient)_____

month by a second letter sent to relatives who had not replied to our first request. A third letter was sent out one month later. By these methods approximately 80 per cent of replies was obtained. Finally, the remainder of the group was approached either by direct personal contact or by special letters to physicians or relatives of the patient, bringing the total of replies up to 94 per cent.

IV

Reliability of Data

In most cases a lay opinion is obtained, and while it is unquestionably true that inaccuracies occur, the opinions expressed by the relatives must be considered as valid criteria. In the first place, these relatives are actually living with the patient and are able to observe his reactions to all sorts of daily contacts, disappointments, and difficulties that could not possibly be observed by an attending physician; moreover, they are able to furnish data as to employment, earning capacity, general social adjustment, increased social outlets, etc., which can be used as a check upon the opinion they express. We feel that the opinions thus obtained express fairly accurately the degree of social adaptation of the patient. A small group, the remainder, consists of the opinions of physicians who are at present in contact with or treating the patient.

V

Analysis of Material

Total number of cases	83
Total number of returns	78
Percent returns	94

This is an unusually large percentage of returns on the questionnaire method of follow-up. It far exceeds our expectations.

The following data is based on 78 cases heard from:

Present condition normal 37 (47.3%)
Present condition improved 14 (17.9%)
Total recovered or improved 51 (65.2%)
Died in hospital 1 (1.2%)
Died since leaving hospital 6 (7.8%)
(One of these recovered and was mentally well and working until time of death.)
Unimproved 18 (23.1%)
Data uncertain 2 (2.6%)

Those dying since leaving the hospital include four cases of cerebral arteriosclerosis with psychosis, one case of post encephalitic parkinsonism, and one case of manic depressive insanity. The case dying in the hospital was a patient with an advanced toxic condition due to carcinoma of the bladder and rectum and was beyond any medical or surgical aid at the time of his admission.

Figure No. 2 shows the statistical data for each major diagnostic group of patients admitted. The percentages of recovered and improved at discharge check very closely in most instances with the condition of patients at the present time. In those instances where a marked discrepancy occurs, it can be ascribed to the cases not heard from in that group. The falling off in the arteriosclerotic group is no more than one would expect, as these patients represent elderly people who are physically subject to a great many fatal conditions such as cardiac diseases, renal disease, pneumonia, and death by apoplexy. The small number of psychoneuroses and toxic psychoses is striking and the practically total absence of early behavior disorders of the pre-Schizoid type is almost beyond belief.

A large number of the cases admitted were suffering from chronic mental conditions, either in the nature of organic brain disease or of dementia praecox. The diagnoses in these cases were distributed as follows:

Psychoses with Cerebral Arteriosclerosis 7
Senile Psychoses 2
Epilepsy (with Psychosis) 4
Epilepsy (without Psychosis) 5
Post Encephalitic Conditions 4
Drug Addicts 3
Dementia Praecox 14
Undiagnosed Neurological Condition 1
Mental Defective with Psychosis 1
General Paresis 1
Psychosis with Constitutional Psychopathic Inferiority 1
Tabes Dorsalis 1

Total 44 (53%)

Ten cases were sent directly from this hospital to the State Hospital at Pueblo after committment. Five cases were committed and sent to Pueblo after discharge from the Colorado Psychopathic Hospital. Of these, two cases had been removed from this hos-

FIGURE 2

Diagnosis	No. of Cases	Condition on Discharge: Recovered	Improved	Unimproved	Died	Unknown	Present Status: Recovered	Improved	Unimproved	Died	Unknown	Per Cent Recovered and Improved: At Discharge	At Present	Per Cent Not Heard From
Manic Depressive	18	4	8	6	0	0	12	3	1	1	1	66.7	83.3	5.5
Dementia Praecox	14	1	2	11	0	0	5	3	6	0	0	21.4	57.1	0.0
Toxic Psychoses	8	2	4	1	1	0	2	2	1	1	2	75.0	50.0	25.0
Psychoses with Cerebral Arterioscleros	7	0	4	3	0	0	2	1	0	4	0	57.0	43.0	0.0
Senile Psychoses	2	0	1	1	0	0	0	1	1	0	0	50.0	50.0	0.0
Epilepsy	9	0	3	6	0	0	0	2	5	0	2	33.3	22.2	22.2
Psychoneuroses	7	1	4	2	0	0	2	3	2	0	0	71.4	71.4	0.0
Miscellaneous (Includes Drug Addicts, Post Encephalitic Cases. Unclassified Cases, Neurological Conditions, etc.)	18	0	10	8	0	0	6	5	2	1	4	55.5	61.1	22.2

pital against our advice. The total of fifteen cases going to the State Hospital constitute 18.0 per cent of the entire group. Ten of these are still at the State Hospital, one has died, and the balance improved sufficiently to be either paroled or discharged. The diagnoses on these cases were as follows:

Dementia Praecox	5
Psychoses with Cerebral Arteriosclerosis	2
Chronic Alcoholism	1
General Paresis	1
Constitutional Psychopathic Inferiority	1
Paranoid Psychosis	1
Moron with Hysteria	1
Manic Depressive Psychoses	3

The manic depressive cases which were sent to Pueblo had run a chronic course and did not show sufficient improvement during the stay at this hospital to justify their staying here longer. (Only one of these has recovered sufficiently for discharge after going to Pueblo.)

Figure No. 3 shows the cases grouped according to length of time followed with percent of improved and recovered cases. The table shows a gradual increase in the number of patients admitted from Weld County for each year and a gradual decrease in the total percent improved and recovered.

Figure No. 4 shows the relationship of recovery rate to age for the various follow-up periods. It is largely explanatory of the falling-off in the recovery rate from year to year due to the larger percent of senile patients admitted. It indicates that the number of patients admitted after the age of 50 bears a direct relationship to the recovery rate in each group.

VI

Discussion

The large percent of replies to our questionnaire shows the value of the plan of approach, it indicates the general interest of the public in this institution and the friendly feeling of the laity and profession at large. There appears to be a marked desire on the part of the relatives of former patients to contribute toward the research being conducted at this hospital.

We feel that the above figures give us some assurance that it will be possible for us to form definite conclusions as to our value to the state in preventing permanent institutionalization of a large number of men-

FIGURE NO. 3

PRESENT CONDITION OF PATIENTS SHOWING LENGTH OF TIME CASES HAVE BEEN FOLLOWED

	Length of Time Followed			Less than
	3-4 Years	2-3 Years	1-2 Years	1 Year
Total number of cases	8	23	26	26
Recovered	4	13	10	10
Improved	3	2	5	3
Unimproved	0	4	7	8
Died	1	1	2	3*
Unknown	0	3	2	2
Percent Improved and Recovered	87.5%	69.5%	57.7%	50%

*One case died in this hospital.

FIGURE NO. 4

CORRELATION BETWEEN RECOVERY RATE AND AGES OF PATIENTS IN FOLLOW-UP GROUPS

Cases Followed	Total cases	DECADES 1st	2nd	3rd	4th	5th	6th	7th	8th	Average age	% over 50 years of age	% recovery
3-4 Years	8	0	0	4	1	2	0	1	0	35	12.5	75.0
2-3 Years	23	0	4	5	7	2	3	2	0	35	21.7	69.5
1-2 Years	26	0	2	7	2	7	5	3	0	40	30.7	57.7
Less than 1 Year	26	0	5	5	4	4	5	1	2	38	30.7	50.0

tal cases by extending this procedure to the entire group of patients admitted, and we will be able to derive accurate knowledge of the total results of treatment. There is a further value in the above analysis in that it shows clearly what types of cases we can successfully handle with our present knowledge of mental disease. The recovery and improvement rate of 75 per cent in the toxic psychoses, of 71.4 per cent in the psychoneuroses, and over 66.7 per cent in the manic depressive psychoses gives us assurance that our handling of these cases is fairly adequate. There is also some indication of the progress we have made in treating cases of types that have previously been considered as purely custodial in character. The improvement rates of 57 per cent in our cases of psychoses with cerebral arteriosclerosis and of 21.4 per cent in dementia praecox are extremely gratifying. Unfortunately, the entire group contains but one case of general paresis, so that our marked advance in the treatment of this condition is not at all represented.

The analysis according to diagnosis indicates a general tendency to send only the more severe types of mental diseases to this hospital. As far as the outlying counties of the state are concerned, it seems certain that we are not getting as many of the mild functional cases and early cases of more severe forms of mental disease as we should. The Psychopathic Hospital would be of a great deal more value to the state of Colorado if a more careful selection of cases could be made in the counties prior to the sending of the patients into this hospital. It would be especially of greater value if the functional cases were sent to us early enough to prevent the occurrence of serious mental breaks. The organization of base clinics in various sections of Colorado will accomplish a great deal toward this end.

A striking feature of the analysis is the close correlation between the results of treatment as recorded in the hospital at the time of discharge of patients with the present status of the same patients. Where discrepancies occur, they appear to be only superficial. For example, our improved and recovery rate of 66.7 per cent in the manic depressive psychosis group is lower than the 83.3 per cent shown by the present status of these patients because of the fact that this type of case in general tends toward recovery regardless of the type of treatment. The larger number of recovered cases at the present time is due to a great extent to the fact that many of these cases are well enough to be discharged from the hospital before they are fully recovered. Hospitalization in these cases is of value primarily because it shortens the duration of the illness appreciably and because the patient is properly supervised during this hospital stay so that he is protected from suicide, damage to others, and damage to property. The discrepancy in the case of dementia praecox is much more difficult to evaluate. It probably occurs because many of these patients may show what appears to be a period of remission during which, however, the mental condition actually remains unchanged. In the group of toxic psychoses, the falling off from 75 per cent improved and recovered at discharge to 50 per cent at the present time is probably explainable on the basis of the 25 per cent of cases not heard from. In the arteriosclerotic group, the discrepancies are represented by the deaths. In the senile cases, the cases of psychoneuroses, and the miscellaneous group, discrepancies either do not exist or are too small to be of any significance whatever. The statistics indicate our very conservative attitude in estimating the degree of improvement in our cases and show that our prognostic criteria are fairly accurate.

The 65.2 per cent recovery and improvement rate in the total group (47.3 per cent recovered and 17.9 per cent improved) is fairly satisfactory, especially, when we consider the fact that 53.0 per cent of the total represented chronic deteriorating forms of mental disease. Our research and intensive treatment is evidently accomplishing something toward the reduction of the number of cases in this group that would otherwise by considered purely custodial and would be kept at the expense of the community in the State Hospital at Pueblo for the remainder of their lives.

VIII

Conclusion

We draw the following conclusions:

(1) It is evidently worth while to institute a complete follow-up system to cover at regular intervals the progress made by all patients after their discharge.

(2) We realize keenly the inadequacy of present-day methods in dealing with such conditions as dementia praecox, cerebral arteriosclerosis, epilepsy, and similar conditions. However, our results compare well (in this small series) with those obtained elsewhere.

(3) The people and practicing physicians of the state of Colorado are not utilizing the Colorado Psychopathic Hospital as much as they should for the purpose of diagnosis and treatment of psychoneurotic conditions and early cases of severer forms of mental diseases.

(4) No conclusions can be drawn concerning the effect of the type of disposition on the ultimate outcome of these cases. Our series is too small to be of any value in this respect. With the larger series, which will be obtained as the general follow-up program is extended, such conclusions may be apparent.

(5) There is close coincidence between the condition of patients as estimated by the physicians at the time of their discharge from this hospital and their condition as reported by relatives later.

We express our sincere appreciation for co-operation in this study given us by friends and relatives of patients who have been treated here and by the medical practitioners of Weld County.

NEWS NOTES

Dr. George C. Ruhland

Dr. George C. Ruhland, Commissioner of Health of Syracuse, New York, was brought to Denver and delivered three lectures under the auspices of the Medical Society of the City and County of Denver. This was made possible by a fund which has been provided through the efforts of Dr. J. J. Waring, providing for the expenditure of $1,000 a year for three years to promote preventive medicine within the city and state.

Dr. Ruhland spoke first before the Denver Public Health Council on the subject "Health Appraisals in Other Cities and Their Results." He also addressed the local medical society, outlining "A Program of Tuberculosis Control for a Modern City." The following day he discussed "A Modern City Program of Child Welfare." He addressed the Chamber of Commerce on the "Economic Aspect of Public Health."

A Foreign Guest

Dr. F. D'Hollander, professor of psychiatry of the University of Louvain, Belgium, spent one week visiting the Colorado Psychopathic Hospital. Dr. D'Hollander is visiting psychiatric clinics in this country and expressed great interest in the organizations of both the Colorado Psychopathic Hospital and the Colorado General Hospital.

Medical Legislation

Senate Bill No. 79, which provided that medical prophylaxis in schools should be made optional with parents, failed to become a law. House Bill No. 19, which provided for a separate board for licensing chiropractors, also failed to be enacted into law. For this favorable medical legislation the profession is indebted to the speaker of the house, Dr. Royal Caulkins, and to the chairman of medical affairs of the House, Dr. E. J. Brady of Colorado Springs. Both of the above measures passed the Senate and would have become laws had it not been for the intelligent and bold opposition of Drs. Caulkins and Brady.

House Bill No. 42, which provided for the annual registration of physicians, osteopaths, chiropractors, midwives and chiropodists, passed both houses and was signed by the governor. Unless this law is not put into force by the State Board of Medical Examiners, annual registration accompanied by a fee of $2 will apply to all practicing the healing art within the state of Colorado in 1930.

House Bill No. 420, pertaining to the competency of witnesses and privileged conversation was introduced by Dr. Brady. It passed the House, but failed to pass the Senate. Many other bills were presented to the Committee on Medical Affairs, which might have had some indirect influence on the practice of medicine. Most of these bills were wisely killed in committee.

Dinner to Dr. Hubert Work

The Denver County Medical Society honored its most distinguished member with a banquet at the Country Club on the night of April 13th. About seventy physicians from Denver, Colorado Springs and Pueblo attended; the Post prandial exercises included responses from Dr. Leonard Freeman, Dr. Henry Sewall, Dr. Edward Jackson and from the guest of the evening, With Dr. J. W. Amesse as toastmaster. The informal address of Dr. Work, sprinkled with the humor that has made a nation smile, will linger in the memory of his colleagues. He reviewed his early years of practice, when Colorado was a frontier state, and spoke feelingly of his comrades who shared the hardships of the pioneers. In discussing preparation for public service, Dr. Work declared that the knowledge, tact and common sense exercised by the trained physician in assembling data for a correct diagnosis fit him as few other experiences can for the problems presenting in governmental administration. The national chairman of the Republican party left for Washington immediately after the banquet.

Several physicians of Colorado attended the annual meeting of the American College of Physi-

cians, held in Boston in April. The college will meet in Minneapolis in 1930.

Our office is informed that there will be a post-graduate course in ear, nose and throat surgery for American physicians at the University of Bordeaux, France, commencing July 22, 1929.

Dr. Leon Felderman, Philadelphia, Pa., is in charge of registering the American physicians for this course.

Dr. S. D. Van Meter, who is president of the American Society for the Study of Goiter, completed his official year by presiding at the annual meeting of that organization held in Dayton in April, 1929.

A post-graduate course in neuro psychiatry will be given in the Psychopathic Hospital during the month of July, 1929.

WOMAN'S AUXILIARY

Denver unit will entertain at the annual dinner-dance and card party on Monday, April 22, at the Olin Hotel. Reservations are in charge of Mrs. George P. Lingenfelter.

At the last meeting of the auxiliary a unanimous vote was cast to establish a loan fund for students at the Colorado Medical School. There has been great need of such assistance to needy students and this is considered a most commendable step for auxiliary activity.

Weld county unit was organized during the month of April. Mrs. George Mial, state president, accompanied by Mrs. T. Mitchell Burns, Mrs. Claude Cooper and Mrs. R. G. Smith, motored to Greeley to assist in organizing the unit.

MEDICAL SOCIETIES

COLORADO OPHTHALMOLOGICAL SOCIETY

December 15, 1928

Dr. C. A. Ringle, Presiding

Occlusion of Superior Branch Central Artery

Dr. James M. Shields showed Mr. S. B. O., age 74 years. In June, 1921, both eyes were known to have been normal in all respects with full standard vision with correcting lenses and no field defects.

The patient came on December 4, 1928, complaining that he had noticed blurring of vision for right eye about two weeks ago. He also noted when looking with the right eye at any object, he could see the upper half of the object, but not the lower.

The fundus showed a white cord-like change in the upper branch of the central artery of the right eye as the artery passes over the upper margin of the disc. The branches of the artery above are not obliterated but are much attenuated. The field of this eye showed obliteration of the entire lower nasal quadrant and the inner half of the lower temporal quadrant.

Dr. James M. Shields also showed Mr. A. W. M., age 56 years:

Retinal Detachment

The right eye of this patient presented a large retinal detachment occupying the lower quadrant. The disc is seen well with aperture while the greatest elevation of the retina is measured with a 8.00 D. sph. The vessels on the surface of the detachment showed marked attenuation and the upper field quadrant of this eye is blind.

This man was in an automobile accident on February 14, 1928, and received a hard blow on top of the head. He was not conscious of failing vision in this eye until late August, 1928. Vision of this eye is 6/16 with 2.50-0.75 axis 82°, of the left eye 6/4 with 1.75-0.62 axis 85.

Bilateral Chronic Glaucoma with Iridectomy

Dr. William H. Crisp presented a woman aged 38 years, who had bilateral chronic glaucoma. Iridectomy had been done in the left eye six, and in the right eye eight years previously. Recently, in spite of the use of 1 per cent pilocarpin solution three times a day and eserin sulphate 1:240 twice daily, the tension of either eye had frequently been around forty millimeters. The corrected vision of the right was 5/4 partly; that of the left eye 5/30 partly. Sometimes, under vigorous use of the eserin and pilocarpin, the tension had dropped to as low as right twenty-four to twenty-six, left twenty-two to twenty-three millimeters. The left field was greatly contracted, and was within ten degrees of the fixation point above and below; while the right field was well preserved in an irregular outer quadrant, but in rather more than the nasal half was contracted to within five degrees of the fixation point. There seemed to be an appreciable tendency to exacerbation at the menstrual period. Especially in view of the patient's age, should a supplementary filtration operation be considered?

Endophthalmitis Septica

Dr. William C. Finnoff brought J. H. E., male, age 56, a mechanic.

While pounding on a piece of "case hardened" steel, a particle flew into his right eye, 2½ mm. from the limbus on nasal side, passing through the globe. The foreign body was located 18 mm. posteriorly to the anterior surface of the cornea, 5 mm. to the temporal side, and 12½ mm. below the horizontal meridian; it measured 1½ mm. in diameter.

When first seen on December 8, 1928, four days following the injury, there was moderate circumcorneal injection. The anterior chamber was filled with fibrin and a 1.5 mm. hypopyon was present in the lower angle; the lens was clear and the vitreous turbid.

The patient was sent to the hospital December 8th and given a vaccine with a total of 25,000,000 typhoid para-typhoid bacilli. The temperature rose to 101° in thirty-two hours and gradually subsided. The second dose of 50,000,000 was given sixty hours later with a similar rise of temperature in eight hours and 100,000,000 bacilli were given December 13th with a rise of 99.6.

Twenty-four hours following the first injection the hypopyon had diminished one-half and the anterior chamber was quite clear. It then filled with fibrin, but this has gradually diminished with subsequent injections. The chemosis, circumcorneal injection and general condition of the eye have improved marvelously since the administration of para-typhoid bacilli.

Glaucoma Simplex

Dr. Melville Black exhibited a man 52 years of age. The patient came under his observation six weeks ago with a well developed glaucoma simplex in both eyes. At that time the vision O. D. was 20/30 and O. S. 20/20. The fields showed a contraction to 10 degrees. The tension O. D. was 49 and O. S. 43 with the Gradle tonometer. Under 2 per cent pilocarpin the pupils came down to 1.5 mm. and after one week the tension was 20. The tension, however, again increased and is now 38—the fields have remained unchanged.

Retino-Charardítis and Old Paralysis of External Rectus

Dr. George Sine (invitation)—showed H. B. male, 55 years of age. He was examined in November, 1928, at which time he complained of double vision, and stated that six years ago he struck the right temporal region of his head and has had double vision to the right ever since. There was no complaint of failing vision, but vision was better by day than by night. Ocular examination showed slight, coarse, conjunctival injection. The right eye deviated inward about 15 degrees and slightly downward. The rotations were apparently quite full in all directions, the squint being concomitant convergent in type. Both eyes converged equally so that he had single vision at about ½ meter. The pupils were slightly irregular, equal in size, and reacted sluggishly to light, but normally on accommodation and convergence. The tension was normal by palpation. Vision O. D. 6/5-1. O. S. 6/6.

There was a marked tesselation of the fundi, more marked in the right eye with some sclerosis of the choroidal vessels. Both fundi presented a picture of retinochoroiditis, both in the periphery and around the papillae. The maculae were normal.

Diplopia fields taken today and a month ago showed a practically constant homonymous diplopia to the right in all directions except to the extreme left and it does not increase on looking to the right. The separation is greatest midway in all directions and decreases in extreme rotation. Single vision is had on convergence within one-half meter.

Fixation fields showed normal rotations in the left eye, and the right eye showed only a slight limitation of motion outward and up and outward; in fact, it is only about 10 degrees less than normal in these directions.

The Blood Wassermann is negative, but the spinal fluid was positive and showed a colloidal gold curve indicative of tabes. Neoarsphenamin has been used for the past month with improvement in general condition. There has been no change in the ocular findings in the past month except that the vision in the right eye has diminished to 6/7.5.

Traumatic Dislocation of Lens

Dr. John A. McCaw presented Mr. F. G., age 50. On May 21, 1928, he was struck on O. S. by the nozzle of a high-pressure air hose, producing a lacerated wound that perforated the upper eyelid and extended from below the eyebrow to within about 5 mm. of the margin of the lid. The perforation went through the skin, conjunctive, orbital fascia and tendon of the levator. The wound was closed with several sutures.

The eye was not examined until the lid was healed, when a tremulous iris and a dislocated lens were found. The lens was lying in the vitreous below. The eye had been from the first perfectly quiet, so it was decided to leave it alone after trying, without success, to bring the lens forward to the anterior chamber. Vision O. D. 20/16, O. S. 20/20 with plus sph.

Retinitis Albuminurica

Dr. William M. Bane showed T. M., colored, age 20, a housewife, whose fundi evidenced an unusually beautiful and typical appearance.

This girl has had three babies, one died at birth, one died when a few weeks old, and the last one is living and well, just two weeks old. The blood Wassermann was negative. There were some eclamptic symptoms before the birth of the baby, and the urine contained some albumin. The first signs of poor vision were noticed in the right eye by the patient soon after the last baby was born. The vision of this eye has failed until now it is only possible to see a hand at one foot as a moving object. The left eye began to fail, so far as she knows, just about one week later than the right. Vision with it is now 5/20. The typical star-shaped exudate surrounding the macula is more pronounced in the right than in the left, but both fundi show numerous hemorrhages and a marked neuro-retinitis. The urine shows a faint trace of albumin and many pus cells. The blood chemistry shows: non-protein nitrogen 117.6 mgm. in 100 cc., urea nitrogen 10. mgm. in 100 cc., creatinin 1.33 mgm. in 100 cc., sugar 83.33 mgm. in 100 cc.

DONALD H. O'ROURKE, Secretary.

SAN LUIS MEDICAL SOCIETY

The regular monthly meeting of the San Luis Medical Society was held at Del Norte, Colorado, April 15, 1929. A fine turkey dinner was served at the Spanish Trail Inn at 7:30 p. m.

At the business meeting Dr. C. A. Davlin and Dr. Charles Trueblood were appointed membership censors. Periodical health editorials are to be published in the local newspapers to encourage co-operation in public health.

The following program was rendered:

Dr. C. A. Davlin, Alamosa, "Public Health;" Dr. R. D. Weiler, Monte Vista, "Endocrinology;" Dr. L. L. Herriman, Alamosa, "Sub-Lingual Abscess;" Dr. C. G. Pugh, Saguache, "Spinal Anaesthesia;" Dr. Paul K. Dwyer, Alamosa, "Infant Feeding."

Dr. Roberts of Monte Vista and Dr. Harold T. Walsh were new members. The attendance was good and the president, Dr. A. B. Gjellum, and Dr. R. D. Weiler of Del Norte deserve credit for arranging the program.

The next meeting will be held at Monte Vista, May 15, and members of that city will be in charge of the program.

BOOK REVIEWS

Bronchial Asthma. Its Diagnosis and Treatment. By Harry L. Alexander, A.B., M.D., Associate Professor of Medicine in the Washington University Medical School, St. Louis, Mo.; Associate Physician to the Barnes Hospital, St. Louis, Mo. Illustrated. Lea & Febiger, Philadelphia. 1928. Price $2.25.

The item which especially appeals to the reader who is giving special attention to asthma, is that the author sees fit to make few positive statements. Congratuations. It would seem that the diaphragmatic "flattening" mentioned could be more logically explained because of capillary delitation, than because of "air cell sposm." Nocturnal occurrence of paroxysms should call attention to life habits during the preceding day. W. A. GAGE.

An elderly gentleman who had never seen a football game was persuaded by a young enthusiast to attend. "Now," said the young fellow as game was about to start, "you'll see more excitement for a couple of dollars than you ever saw in your life."

"I have my doubts about that," was the reply. "that's all my marriage license cost me."

THE COLORADO STATE MEDICAL SOCIETY
(Incorporated November 1, 1888.)

Next Annual Meeting, September 3, 4, 5, 1929.

OFFICERS 1928-1929

President, Samuel B. Childs, Denver.

President-elect, William Senger, Pueblo.

Vice-Presidents, 1st, W. M. Shultz, Central City; 2nd, T. R. Knowles, Colorado Springs; 3rd, F. E. Willett, Steamboat Springs; 4th, O. P. Shippey, Saguache.

Secretary, F. B. Stephenson, Denver.

Treasurer, L. W. Bortree, Colorado Springs.

Delegates to the American Medical Association: Senior, O. M. Gilbert, Boulder, term expires 1929; Alternate, B. B. Blotz, Rocky Ford, term expires 1929. Junior, J. W. Amesse, Denver, term expires 1930; Alternate, L. H. McKinnie, Colorado Springs, term expires 1930.

Councilors:

		Term expires
District 1.	Ella A. Mead, Greeley	1930
District 2.	G. P. Lingenfelter, Denver	1929
District 3.	Geo. D. Andrews, Walsenburg	1933
District 4.	W. W. Crook, Glenwood Springs	1931
District 5.	A. W. Robbins, Durango	1932

Constituent Societies, Times of Meeting, Secretaries

Arapahoe County—Last Monday of each month; secretary, B. G. Carson, Englewood.

Boulder County—Second Thursday; secretary, Margaret Johnson, Boulder.

Chaffee County—First Tuesday of each month; secretary, G. W. Larimer, Salida.

Delta County—Last Friday of each month; secretary, Lawrence L. Hick, Delta.

Denver County—First and third Tuesday of each month; secretary, O. S. Fowler, Denver.

El Paso County—Second Wednesday of each month; Secy., W. A. Campbell, Jr., Colo. Springs.

Fremont County—Fourth Monday of each month; secretary, Kon Wyatt, Canon City.

Garfield County—Last Thursday of each month; secretary, R. B. Porter, Glenwood Springs, Colo.

Huerfano County—Third Thursday of each month; secretary, J. F. Baca, Walsenburg, Colo.

Kit Carson County—Quarterly, first Monday of December, March, June and September; secretary, Wm. L. McBride, Seibert, Colo.

Lake County—First Thursday of each month; secretary, J. C. Strong, Leadville.

Larimer County—First Wednesday of each month; secretary, Lowell Little, Loveland.

Las Animas County—First Friday of each month; secretary, M. C. Albi, Trinidad.

Mesa County—First Tuesday of each month; secretary, A. G. Taylor, Grand Junction.

Montrose County—First Thursday of each month; secretary, J. A. Spring, Montrose.

Morgan County—Time of meeting (not reported); secretary, H. M. Hawthorn, Weldona.

Northeast Colorado—Second Thursday in each month; secretary, E. P. Hummel, Sterling.

Northwestern Colorado—Second Thursday of each month; secretary, F. J. Blackmer, Steamboat Springs; E. L. Morrow, Oak Creek.

Otero County—Second Thursday of each month; secretary, Geo. Sorensen, La Junta.

Prowers County—First Tuesday of each quarter; secretary, Geo. S. Williams. Lamar, Colo.

Pueblo County—First and third Tuesday of each month; secretary, J. R. Blalock, Pueblo.

San Juan Medical—Second Saturday, January, April, July and October; secretary, H. A. Lingenfelter, Durango.

San Luis Valley—Time of meeting (not reported); secretary, P. K. Dwyer, Alamosa.

Weld County—Third Monday of each month; secretary, H. W. Averill, Evans, Colo.

STANDING AND SPECIAL COMMITTEES

Committee on Scientific Program: J. J. Waring, chairman, Denver; E. D. Downing, Woodmen; Frank R. Spencer, Boulder.

Committee on Credentials: F. B. Stephenson, chairman, Denver; John P. McDonough, Gunnison; George M. Noonan, Walsenburg.

Committee on Public Policy: C. F. Kemper, chairman, Denver; Edward Jackson, Denver; Henry Sewall, Denver; John R. Espey, Trinidad; Edward F. Dean, Denver; N. S. Madler, Greeley; Crum Epler, Pueblo.

Committee on Publications: Charles S. Elder, chairman, Denver; C. S. Bluemel, Denver; George A. Moleen, Denver.

Auditing Committee: W. K. Reed, chairman, Boulder; O. P. Shippey, Saguache; Chas. J. Lowen, Denver.

Committee on Necrology: Philip Hillkowitz, chairman, Denver; W. B. Hardesty, Berthoud; C. H. Graves, Canon City.

Committee on Medical Education: S. Fosdick Jones, chairman, Denver; L. H. McKinnie, Colorado Springs; Chas. N. Meader, Denver.

Committee on Social Medicine: R. P. Forbes, chairman, Denver; J. R. McDonald, Jr., Denver; B. B. Blotz, Rocky Ford.

Committee on Medical Literature: W. A. Jayne, chairman, Denver; Gerald B. Webb, Colorado Springs; A. J. Markley, Denver.

Committee on Hospitals: Maurice Rees, chairman, Denver; O. S. Fowler, Denver; C. O. Giese, Colorado Springs.

Committee on Military Affairs: Colonel Paul C. Hutton, chairman, Denver; George P. Lingenfelter, Denver; John Bouslog, Denver.

Committee on Mental Hygiene: F. B. Ebaugh, chairman, Denver; C. S. Bluemel, Denver; Edward Delehanty, Denver; Philip Work, Denver; H. A. LaMoure, Pueblo; Frank T. Stevens, Colorado Springs.

Committee on Periodic Health Examination: C. E. Harris, chairman, Woodmen; F. M. Heller. Pueblo; J. B. Crouch, Colorado Springs.

Committee on Co-operation With State Pharmacal Association: H. W. Stuver, chairman, Denver; A. F. Erick, Delta; M. D. Brown, Denver.

Committee on Cost of Medical Care: Maurice Rees, chairman, Denver; James J. Waring, Denver; Frank R. Spencer, Boulder; P. O. Hanford, Colorado Springs; George H. Curfman, Salida.

Committee on Industrial Commission Fees: Frank W. Kenney, chairman, Denver; F. B. Stephenson, Denver; T. E. Beyer, Denver.

Committee on Selection of An Executive Secretary: The President, Secretary and Treasurer of the Society with the assistance of such members of the Society as the President deems advisable.

Committee on Finance: W. A. Jayne, chairman, Denver; C. F. Hegner, Denver; L. W. Bortree, Colorado Springs.

Curator of Exhibits: E. D. Downing, Woodmen.

Committee on Local Arrangements: N. A. Madler, chairman, Greeley, Colo.; C. B. Dyde, Greeley, Colo.; E. W. Knowles, Greeley, Colo.; W. F. Spalding, Greeley, Colo.

WYOMING MEDICINE

President, F. A. Mills, M.D., Powell — First Vice President, C. W. Jeffrey, Rawlins
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Councilor, H. L. Harvey, Casper
Member of Medical Defense, Earl Whedon, M.D., Sheridan
Fred Horton, M.D., New Castle — George L. Strader, M.D., Cheyenne

EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

NEWS NOTES AND COMMENT

ARCHIVES OF OPHTHALMOLOGY

Number 1, 2 and 3 of Volume 1, published by the American Medical Association, are now off the press and in the hands of ophthalmogists. Dr. Herman Knapp was the editor of the original publication and the editorial board of the present publication is composed of Arnold Knapp of New York, William Zentmayer of Philadelphia, George S. Derby of Boston, Sanford R. Gifford of Omaha, Francis Heed Alder of Philadelphia and John Herbert White of Boston.

The first three issues are all well written and beautifully illustrated. Original scientific papers, notes and news, abstracts from current literature, society transactions covering the important societies of America, and indeed the civilized world makes up the archives.

The subscription price of eight dollars a year is not too high and surely every doctor interested in ophthalmology should send in his subscription to the A. M. A., 535 North Dearborn Street, Chicago, at once, in order to have a complete file of this most useful monthly.

We congratulate the editors and the management of the American Medical Association on its publication. E. W.

SERPIGINOUS ULCERS OF THE CORNEA AND THEIR TREATMENT

For years the nightmare of all ophthalmogists has been a slow grade of ulcer known as serpiginous ulcer which at times nothing seemed to cure.

Often occurring in people in the prime of life and choosing as its victims persons whose occupations or professions demanded the closest use of their eyes, these ulcers ran their courses. For years the belief has been held that some specific organism was the primary cause and yet not until Uhthoff and Axenfeld in 1896 discovered that the pneumococcus was the causative germ were we certain just what germ to fight.

To Morgenroth and Levy is due the credit of the discovery of the use of Ethylhydrocruprein in treatment of serpiginous ulcers.

Since the use of this drug is so simple and effective its use should be frequently called to the attention of the medical profession. Every drug known as an antiseptic and bactericede has been used in the treatment of these ulcers, but by many the actual cautery was considered the only treatment even if attended with considerable risk in its use. However, since the use of this drug is so simple and its effects so striking, the cautery can be dispensed with and the drug used. It may not have quite the dramatic effect on the patient and his family that the cherry iron had, but the results are more certain and lasting.

The eye should be cleaned with a boric acid solution and the bottom of the ulcer gently rubbed after a 2 or 4 per cent cocaine solution has rendered the eye painless. A 2 per cent freshly made sterile solution of ethylhydrocrupein is applied to the ulcer only for one minute. This application is best made by winding a small whisp of cotton tightly on a fine probe. Have the cotton tight and trim off any projections of

cotton so that the 2 per cent solution is applied only to the ulcer and its sides. Follow with a one-half solution of the ethylhydrocrupein over the conjunctiva and a 1 per cent solution of atropin. Bandage both eyes if possible for one day and during the following three days install a one-half solution of ethylhydrocrupein into the conjunctiva of the injured eye. The results are remarkable. E. W.

THE VARIABLE SIGNIFICANCE OF URINARY SUGAR*

C. F. KEMPER, M.D.
DENVER

The lowly subject of one of the simplest types of urinalysis seems slightly out of caste among modern scientific discussions. But if an excuse for such an elemental subject is necessary, it may easily be found. Some form of urinalysis is one of the oldest procedures known to medicine. In fact, in the middle ages "water casting" was the most important diagnostic measure. At that time, we are informed, the urinal was so exalted that, for a time at least, it was taken as the emblem of our profession.

Though the significance of urinary findings has completely changed, urinalysis is still by all odds the most widely employed and perhaps most useful diagnostic laboratory test now in existence. But neither age nor commonness are a certain guarantee of common knowledge. Therefore, at the risk seeming to contend for the obvious, it is the purpose of this paper to discuss a single and simple test for detecting sugar in the urine and to suggest some of its limitations, and its variable significance as encountered in the routine practice of medicine.

At the very beginning it may give point to our effort to recall a few concrete cases where error in interpretation has occurred. Recently a juvenile diabetic patient, who had previously been rescued from coma, made such improvement under appropriate treatment that he presented himself for a life insurance examination. The examiner found a sugar free urine and advised the company to assume the risk. Another patient 30 years of age was declined insurance because sugar was found in every specimen, though he had never had any diabetic symptoms and the glucose tolerance curve* was within the limits of normal. An expectant mother, who had previously been aborted because of persistent glycosuria, was found to have a normal blood sugar and glucose tolerance. She was finally advised to go through to term despite the sugar. She now has a normal child and, save for glycosuria, is a normal mother. An infant was examined to determine whether or not it had diabetes. The main symptom was frequent voiding. By pouring into the test tube an excess of urine a faint clouding could be detected. There was no polyuria, polydipsia, polyphagia nor loss of weight. A girl 26 years of age, had been able to keep sugar free most of the time for several months previously on rigid dietetic restrictions only. Because of that she had come to believe that a sugar free urine was proof of the needlessness of insulin and, as a consequence of this error, had fallen into diabetic coma.

Conversely, but by the same fallacious interpretation of urinary sugar alone, many mild diabetics of advanced years have been

*Delivered before the Tri-State Meeting of the State Medical Societies of Idaho, Montana and Wyoming, in the Yellowstone National Park, Aug. 29, 1928.

*The glucose tolerance test, as usually employed, consists of the following procedure: 50 to 100 grams of glucose, diluted in water or orange juice, is given the patient on a fasting stomach. This is best done in the morning when food has not been taken within the previous fourteen hours. The blood sugar is taken just before the administration of the glucose, one hour thereafter and three hours thereafter. A fasting blood sugar of 100 mgs. or thereabouts is considered normal. An elevation of the blood sugar to 170 or 180 mgs. within one hour after the ingestion of glucose is within the range of normal. The return of blood sugar to the fasting level within three hours is considered normal. This test is in no way a test of the exact tolerance of the patient but merely determines whether or not glucose is metabolized normally or defectively. It is essentially a qualitative test. It has many modifications.

given a bad prognosis because of strongly positive reduction on an unrestricted diet. Many other untenable conclusions might be cited. However, the most common ones fall into five groups which may be discussed in answer to the following five questions:

1. In making a test for sugar is there actual reduction of the copper solution?

2. If there is actual reduction, is it due to sugar, or is it due to other reducing substances?

3. If the reduction is due to sugar, is that sugar dextrose or is it some other sugar of relatively little significance?

4. If the sugar is dextrose, is it due to the metabolic defect of diabetes mellitus or is it a relatively innocent alimentary, renal, or secondary glycosuria?

5. If diabetes mellitus exists, is it severe and progressive or benign and relatively stationary in character?

1. Is there reduction?

The value of the answer to this question depends almost entirely upon the technique of the examiner. It is not uncommon to see some such unprecise and untrustworthy technique as the following: The examiner pours an uncertain amount of any of the various kinds of copper solution into a test tube, of any size and adds an indefinite amount of urine from the bottle, and boils over a Bunsen burner until the mixture bumps. If the contents of the tube shows no change of color, it is discarded at once. Thus many weakly reducing urines are missed. Likewise by the accidental addition of a great excess of urine, many normals are brought into the field of questionable reactions.

These mistakes may easily be avoided by adopting the following precise technique. The copper solution of choice is Benedict's qualitative. It has the advantages of being a single solution reagent, of keeping indefinitely and of not being sensitive enough to give false positive reactions. Place approximately six cubic centimeters of this solution in a test tube and add exactly eight drops of urine by means of an unbroken medicine dropper. This should be placed in a boiling water bath and permitted to remain for five minutes. If upon examination the color has changed to red, yellow, green or even a cloudy blue, there is reduction. Confusion here can arise only in case of mere clouding. Joslin very wisely teaches his diabetic patients a standard by which such questionable reactions may be definitely and safely determined. They are taught to consider the test negative when clouding is so slight that ordinary print cannot be read through the test tube. Sometimes a confusing flocculent precipitate appears when the urine contains a large amount of phosphates, but usually this is easily recognized because of its flocculent appearance and not to be confused with the fine, diffuse precipitate of a faint reduction. When Benedict's qualitative solution, employed as above described, changes its appearance to any one of the four colors, some actual reduction is present.

2. Is the reduction due to sugar?

This question is asked because in the back of our minds we all remember from our school days the statement that certain urinary constituents other than sugar will reduce copper. This information could be forgotten without practical loss. It is true that highly concentrated urine may contain enough creatinin to give slight reduction, but its presence in the urine is so rare and so obvious when the clinical condition of the patient is familiar to the examiner, that, as a confusing factor, it is negligible. Likewise glycuronic acid may at times give a false reduction. This can easily be ruled out either by testing a freshly voided specimen or by ascertaining whether or not the patient has been using drugs that give rise to this reducing substance in decomposed urine. (Phenol, menthol, camphor, etc.) When freshly voided urine that is not unusually concentrated gives a reduction, it is safe to conclude that sugar is present.

3. Is the reducing sugar dextrose or is it some other sugar having reducing qualities?

The most common copper reducing sugar other than dextrose is lactose. Occasionally it appears in the urine of women during the periods of pregnancy and lactation and very rarely in the urine of nursing infants. Of

such **grave significance is diabetes under these conditions** that it is imperative that the true nature of the kind of sugar be determined. If the simple fermentation test is employed, using a U tube and pure yeast, and no fermentation appears, dextrose is absent. If, however, there is fermentation, there may still be hope that the sugar is innocent lactose, as some strains of yeast ferment lactose as well as dextrose. The problem can usually be clarified by restricting the diet in carbohydrates thus desugarizing the urine in case of incipient diabetes but having no such immediate influence on lactosuria. If there is still doubt, the type of sugar should be identified by well known procedures of a clinical laboratory. Finally diabetes mellitus may be ruled out by some form of glucose tolerance test, which should be resorted to as the court of final appeal. Pentose and maltose are also copper reducing sugars and under certain conditions are excreted in the urine. They are of such rare occurrence, however, that if all were misinterpreted, little injury would be done. Levulose may occur, but **usually only in severe diabetes** and therefore has no practical clinical significance. Levulosuria is very rare. A few cases are on record in which levulose alone was present in the urine. Mixed levulosuria and glycosuria is not uncommon in cases of severe diabetes.

4. Is the sugar due to diabetes mellitus?

When reduction occurs, and lactose is ruled out, it is important to determine whether the dextrose is due to genuine insular hypofunction as occurs in diabetes or a transient or renal glycosuria. Dextrosuria is sometimes encountered in cases of goiter, acute infection or excessive ingestion of concentrated carbohydrates. Reduction under such circumstances is usually mild, the patient fails to give a history of diabetic symptoms and the sugar soon disappears when its obvious cause is removed. Should there remain any doubt as to the cause of such glycosuria, a blood sugar or a glucose tolerance should be secured. The occurrence of sugar under such conditions cannot safely be considered with complete indifference as it may indicate an insular structure and function defect, insufficient under stress and therefore a potential diabetes mellitus.

Renal or benign glycosuria is more often the cause of real confusion. Usually this condition gives a strongly positive reduction and, if the quantity of the sugar is estimated, it may equal the amount encountered in severe, uncontrolled diabetes. The sugar is always dextrose. Such patients fail to give a history of diabetic symptoms, and the urinary sugar is not materially influenced by carbohydrate restrictions. Under whatever circumstance its presence is suspected, the patient should not be given an encouraging prognosis until a sugar tolerance **rules out true diabetes.** This condition is occasionally encountered in pregnancy, and is believed to be due to a lowering of the renal threshold to sugar. It is particularly confusing under such circumstances because of the probability of either lactosuria or true diabetic glycosuria.

5. Is the diabetic condition severe or mild?

Finally, and most important of all, when sugar is discovered in the urine and it is determined to be due to the metabolic defect of diabetes mellitus, it must be asked, is the condition severe and progressive or is it comparatively mild? Let it be understood that glycosuria and a definite history of cardinal diabetic symptoms always spells diabetes. Glycosuria in the absence of these symptoms but accompanied by an elevated blood sugar on fasting, or a blood sugar rising above 180 mgs. following the ingestion of 50 grams of glucose, or a blood sugar failing to return to the normal of 100 mgs. within three hours, establishes the diagnosis of diabetes. In fact, any glycosuria, whether the reduction is weak or strong, with or without symptoms, in the young or old should always be interpreted to indicate diabetes until it is definitely ruled out by some such procedures as have been suggested. But it is becoming more generally appreciated that there is diabetes and diabetes. It has been justly contended that there is no more reason to place all the true diabetic glycosurias into one class than it would be to place all cases of albumenuria into the class of Bright's disease. Diabetes may be malig-

nant or benign, rapidly progressive or relatively stationary, demanding most exact management or controlled by the most simple dietary restrictions. About the type of case in hand, little may be learned by the presence of urinary sugar, the total quantity excreted or even the blood sugar itself. The urine may be sugar free under certain well known conditions with a hopeless prognosis in the absence of exact scientific management. Conversely, the urine may be loaded with sugar and, even without exact control, the outlook may be exceedingly hopeful. If then urinalysis, when even supported by sugar estimation, does not indicate with certainty the severity of the diabetic condition, by what standard may this important diagnosis of type be established?

A working answer may be found in the classification on the basis of age. Diabetes under middle life is almost always severe. Diabetes accruing after midlife is usually relatively mild. When exceptions occur to this rule, it is more commonly the appearance of the juvenile type in a patient of advanced years than the benign type in youth. The severe juvenile type is characterized by a sudden onset, rapid progress and difficulty of control. The benign or senile type has an insidious onset, frequently discovered by accident, slowly progressive and controlled with ease. Until these and other clinical conditions are ascertained, the mere presence of a copper reducing urine, even supported by a true diabetic blood sugar curve, does not forecast the severity or mildness of the diaebetic course. In conjunction with these clinical considerations, however, it is the most useful single finding employed in the prognosis and treatment of diabetes.

Obviously, then, in the general practice of medicine there will occur cases of glycosuria the significance of which may be questionable despite the most accurate methods at our disposal. It has become an accepted principle that, where such doubt occurs, it is better to err on the side of safety and treat such a patient as having diabetes than to make the mistake of neglecting a true case of diabetes however incipient or mild. This is particularly true of glycosuria occurring in childhood and youth.

Summary

1. The question of the reduction of copper depends upon the use of a precise technique.

2. Reduction by other urinary constituents is so rare and obvious, that mistakes from such will cause few errors.

3. Lactose is the only urinary sugar of much clinical importance leading to misinterpretation of the Benedict test. It can either be identified or diabetes can be ruled out by appropriate methods.

4. Innocent dextrosurias are determined by the glucose tolerance test. Their innocence should be watched with suspicion.

5. Diabetes mellitus manifests variable degrees of severity. Only clinical judgment can give proper significance to the glycosuria of true diabetes.

NEWS ITEMS

UINTA COUNTY

Dr. T. M. Barber has been appointed first assistant physician to the Wyoming State Hospital at Evanston and entered upon his duties August 26, 1928. Dr. Barber was born in Chicago, Ill., in 1899 and received his B.S. degree in 1925 and his M.D. in 1927, both from the University of Nebraska. He served time as interne at the Immanuel Hospital, Omaha, Neb. Served from July to November, 1927, in the U. S. Veterans' Psychiatric Hospital No. 44, at Boston, Mass. From November, 1927, to his appointment at the Wyoming State Hospital he was assistant superintendent at the State School, Brandon, Vt. While in Vermont he was an active member of the New England Society of Psychiatry and of the Rutland County Medical Society. Since his arrival at the Wyoming State Hospital he has helped Dr. Solier in installing a more complete system of clinical records.

At present there are 295 male and 171 female patients in the Wyoming State Hospital, an increase of almost 100 during the past two years.

Dr. Solier obtained an adequate appropriation from the legislature this last session, to install a much needed x-ray apparatus.

It was on Dr. Solier's recommendation that the legislature passed a new committment law which it is hoped will be more satisfactory than the present law.

Dr. Solier is spending his vacation during the month of March in southern California.

The doctors of Evanston this week received their notices from Cheyenne to forward $1.00 for their annual re-registration fee, this act being a result of our last over-worked legislature. It is too bad it did not include the lawyers, butchers, undertakers and barbers.

WESTON COUNTY

Mrs. Fred Horton of Newcastle is recovering from an acute attack of appendicitis. Dr. Fred Horton is in St. Louis to consult with specialists in regard to his own condition.

SHERIDAN COUNTY

Dr. H. T. Brown, formerly of the Illinois State Hospital, has joined the staff of the U. S. Veteran Bureau at Fort McKenzie, which is located three miles north of Sheridan.

Members of the staff of the U. S. Veterans' Bureau at Fort McKenzie invited the members of the Sheridan County Medical Society to attend their regular staff meeting Tuesday, April 16th.

FREMONT COUNTY

The Fremont County Medical Society held its regular meeting April 6th at Riverton. The meeting is described as a very snappy affair. Dr. Holtz read an interesting paper on "Spinal Anaesthesia" which was followed by an interesting discussion. Dr. Joseph F. Replogle of Lander joined the society.

PAID UP MEMBERSHIP

The fact that all but two of the members of our society who paid their 1928 dues have paid their this year's dues signifies that membership is appreciated. Several new members have joined this year so our membership is ahead of last year.

Wyoming medical men can feel proud of this showing and we doubt if any other State Medical Society can show such a record.

The two who have not paid certainly will do so before the Casper meeting, and although death and removal has had its effect on our total membership, it appears that the total membership will be the highest this year thus far reported.

THE MIDLAND EMPIRE MEDICAL CONFERENCE

The annual meeting of the doctors of southern Montana and northern Wyoming was held in Billings, Mont., April 3rd. The Billings Society acted as host and the conferences and clinics were the best held so far. The idea of these annual clinics and conferences is unique and each year the interest seems to be growing.

The clinics occupied the morning and were held in the Deaconess Hospital and at St. Vincent's Hospital and covered a wide range of interesting cases and their discussions.

A substantial and appetizing lunch was served at the Deaconess Hospital after which the program was continued as an afternoon session in St. Vincent's Hospital.

Here a comfortable, quiet meeting place had been provided and the following program was carried out:

PROGRAM

Infant Feeding.....C. H. Nelson, M.D.

Discussion—F. A. Mills, M.D., Powell, Wyo.; W. C. Tupper, M.D., Laurel, Mont.

Sterility.....J D. Barrett, M.D.

Discussion—J. E. Midgett, M.D., Bridger, Mont.; L. E. Haverfield, M.D., Hardin, Mont.

Moving Picture on Infection of the Hand.....J. I. Wernham, M.D.

Interstitial Keratitis.....R. V. Morledge, M. D.

Discussion—Earl Whedon, M.D., Sheridan, Wyo.; L. H. Huber, M.D., Livingston, Mont.

X-Ray Diagnosis and Treatment of Diseases of the Chest.....J. H. Bridenbaugh, M.D.

Discussion—M. D. Winter, M.D., Miles City, Mont.; W. G. Richards, Billings, Mont.

At 6:30 p. m. the Billings Medical Society entertained all the persons who attended with a banquet at the Northern Hotel. Dr. Elmer Balsam, secretary of the Montana State Medical Society, presided at the scientific meeting and at the banquet.

The following clincs were held:

8:30 A. M.—

Deaconess Hospital—

1. Carcinoma of Cervix-Treatment with Radium.
2. Appendectomy, Cervical Repair and Suspension of Uterus.
3. Demonstration of Post Operative Skin Graft.....Dr. E. W. Thuerer
1. Demonstration of Post Operative Skin Graft.....Dr. W. E. Tupper of Laurel

St. Vincent's Hosptal—

1. Mastoidectomy.....Dr. W. R. Morrison
1. Fulguration of Bladder Tumor.....Dr. J. D. Barrett
1. Cholecystectomy and Appendectomy.
2. Appendectomy.
3. Pelvic Repair.....Dr. R. J. Hanley
1. Bilateral Congenital Dislocation of Hip.
2. Post Operative Orthopedic Clinic.....Drs. L. W. Allard and J. C. Powers
1. Exploration of Tumor of Leg..Dr. A. J. Movius

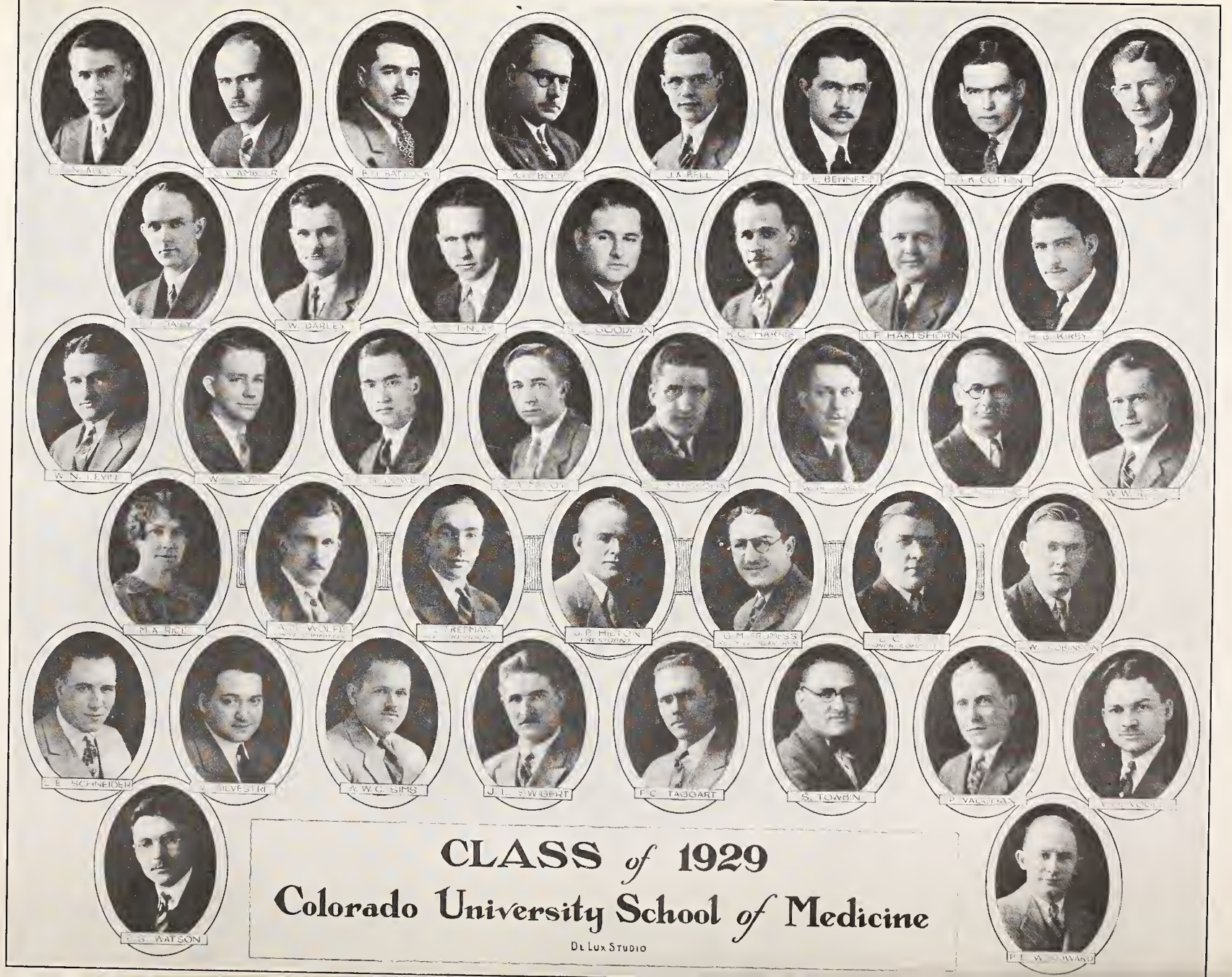
Splendid after-dinner speeches were made by Dr. Karsted, president of the Montana State Medical Society; Dr. Cogswell, state health officer of Montana, and Dr. F. A. Mills, president of the Wyoming State Medical Society.

We hope to publish two of the papers and their discussions in future issues of Colorado Medicine.

We congratulate the gentlemen who were responsible for the success of these meetings and hope for many more such meetings. E. W.

Girl Infants More Robust Than Boy Infants

More boy babies than girl babies are born every year and more boy babies die. This matter of common knowledge is borne out by the records of births and infant deaths for the birth registration area of the United States. For every 100 deaths among girls under 1 year of age in the United States there have been at least 130 deaths among boys of the same age. A slightly higher sex ratio is reported for infant deaths in England and Wales, where the steady decline in the infant death rate since 1900 has been accompanied by an even greater decline for girls than for boys. It has been suggested that the regional and seasonal differences which have been found in the sex mortality ratios are dependent on the differences in the amount of sunlight reaching the infant, the greater need of the male infant for sunlight being indicated by his greater tendency to certain diseases (such as rickets and tetany) likely to develop when the amount of sunlight is insufficient. If this suggestion is borne out by further investigation, artificial sunlight or a substitute is strongly indicated as a method of reducing the present mortality sex ratio.—Childrens Bureau.


J. A. BELL
E. BENNETT
J. A. COHEN
W. DARLEY
R. C. HARRIS
E. F. HARTSHORN
A. G. KIRBY
W. N. LEVIT
M. A. RICE
J. P. MILTON
G. M. SPRINGER
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DE LUX STUDIO

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EDITOR:
C. F. KEMPER, M.D., Denver, Colorado.

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NEGLECTED FOREIGN BODIES IN THE EYE

MELVILLE BLACK M.D.,
Department of Ophthalmology, University of Colorado School of Medicine and Hospitals.

A man of about 30 years of age came to my office a short time ago, giving the following history:

"Two years before, while pounding on a ploughshare with a hammer, something flew and struck him in his right eye. The eye felt a little sore but the vision was not affected. He went to see a local physician in his town and, after an examination of the eye, the physician said there was nothing the matter with it and assured him that he need have no apprehension. The eye bothered him for a few days and then ceased to do so, but the vision gradually became dimmed, the eye discolored, and finally so much so that he became alarmed and came to see me."

I found a chocolate-colored eye while its normal fellow was blue. There was some exudate on the capsule of the lens in the pupillary space, and a small, dark pigmented spot on the iris near the pupillary margin at 2 o'clock.

A magnet brought close to the cornea caused this black spot on the iris to come in contact with the cornea and, when the power of the magnet was turned off, it would drop back again into its former position. This indicated plainly, without the use of an x-ray, that the foreign body was a piece of steel.

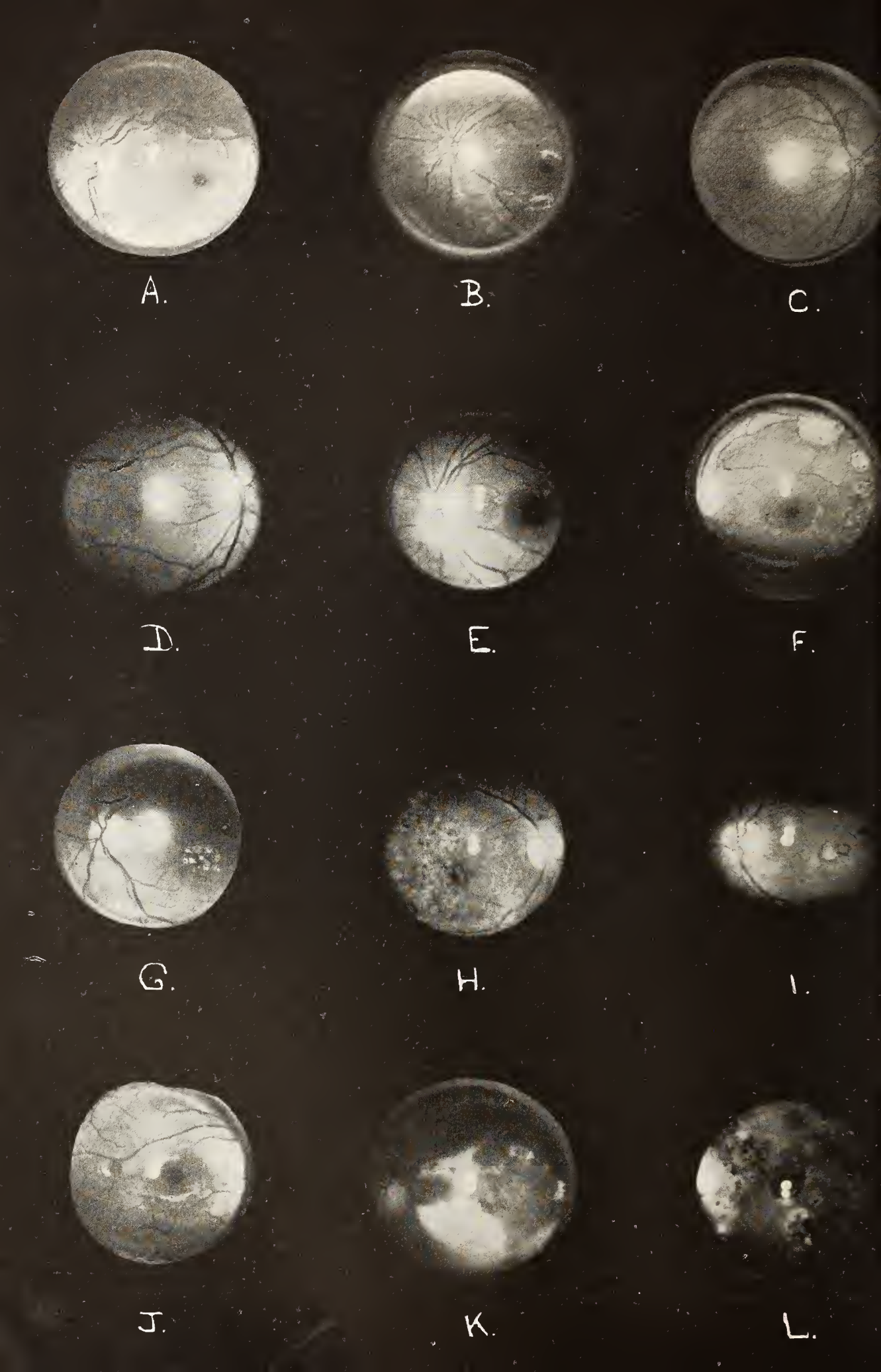
The vision was found to be reduced to 20/200. The anterior chamber was opened at the sclerocorneal junction with a keratome, the magnet tip introduced, the foreign body with the iris pulled out of the anterior chamber, and the foreign body weedled loose from the iris. This proved to be a small speck of iron about one millimeter in diameter. The iris was then pushed back into the anterior chamber, atropine instilled, and the eye closed.

The eye made an excellent recovery from the operation but the damage had largely been done by the changes that had taken place during the two years which intervened between the entrance of the foreign body and its extraction.

If the foreign body could have been removed some time during the first week, the probabilities are that the eye would not have been damaged at all. The siderosis and the general inflammatory reaction incident to the presence of a foreign body have resulted in grave changes and so damaged the vision that now I am afraid it can never recover.

This case should serve to illustrate how unwise it is to advise a patient, giving such a history, that the eye does not contain a foreign body. Such eyes should always be subjected to the use of the x-ray and it is only by its negative findings that an eye can be pronounced free from a foreign body.

If a physician is in any doubt about his competency to pass upon a case of this kind, he should say so to the patient and thereby relieve himself of any further responsibility in the matter. By making a statement that the eye does not contain a foreign body, when he has in no way properly satisfied himself about it, is doing a very great injustice not only to the patient but to himself as well.


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L.

FUNDUS PHOTOGRAPHY

WILLIAM C. FINNOFF, M.D.,
Department of Ophthalmology, University of Colorado School of Medicine and Hospitals.

Ever since von Helmholtz, in 1852, gave to science a practical instrument for the examination of the background of the eye, attempts have been made to photograph the ocular fundus, and a number of cameras have been invented for this purpose. The cameras of Wolfe, Thorner and Dimmer were large and cumbersome and only of value as laboratory instruments. The Dimmer apparatus was as large as a grand piano, much more expensive, and obviously beyond the reach of the clinician. It has been used in only a few of the European clinics.

A smaller instrument that was more practical for clinical purposes was devised by Salomonson of Amsterdam. It has two parts, an optical system for illuminating the eye and another for examining and photographing the fundus. Nordenson, of Stockholm, constructed a smaller and less complicated apparatus that is available for every day clinical use.

The Nordenson instrument, while expensive, is not prohibitive, and is rapidly becoming an important article of equipment for the progressive ophthalmologist. With it satisfactory photographs that give us an accurate means of recording the appearance of the ocular fundus, can be taken. Photographic records of lesions in any part of the body are more accurate and far superior to descriptions, sketches or drawings. Photographs can now be taken at various periods and give us accurate records of the progress of a diseased process in the eye. The plates may be studied at any time and lesions compared and measured when desired.

With the ophthalmoscope elevations and depressions in the fundus background are often difficult to detect. This is especially true if the changes are slight. The Nordenson camera, however, offers us a means of obtaining stereoscopic photographs that enable one to detect slight changes in level when the photographs are studied with the stereoscope. For this purpose two exposures are required. The patient holds the eye in one direction while the first exposure is made and retains fixation while the camera is moved laterally two or two and one-half cm. for the second. Elevations of a swollen disc or cupping of a glaucomatous nerve are beautifully illustrated by this method.

The Nordenson apparatus is manufactured by Zeiss. It is constructed on the principle of a Gullstrand ophthalmoscope and takes advantage of central ophthalmoscopy; i. e., illuminating one portion of the pupil and utilizing the other for examination and photography. The apparatus (Figs. 1 and 2) is in one piece and mounted on a movable stand that is controlled by two milled screws (1). They enable one to move the instrument forward and backward as well as laterally for the purpose of adjustment and focusing. The instrument is raised or lowered by turning screw (2). The illuminating unit (3) is placed above, and attached to, the lens system of the ophthalmoscope (4). A five-ampere carbon arc lamp that is controlled by automatic clock work (5), furnishes the light. Direct current is essential for an even light and good results. The light passes from the carbon (L. Fig. 3) through a system of lenses into the eye through the lower portion of the pupil (Fig. 4) and is reflected back into the ophthalmoscope (0. Fig. 3) to the photographic plate (R). A simple timing device and shutter regulate the exposure of the plate by raising the reflecting mirror (J), that reflects the image into the focusing eye piece (N).

The whole procedure of photographing the fundus is simple and takes but a few minutes. The pupil must be dilated and the patient is required to fix the eyes in a given direction. After adjusting the instruments with the screws (1 and 2, Figs. 1 and 2), the image is focused with the screw (6), the plunger (7) is pressed and the exposure is completed.

After one has had sufficient experience in adjusting and focusing the apparatus, the results are uniformly good and excellent photographs are obtained in most cases.

The advantage of photographic records

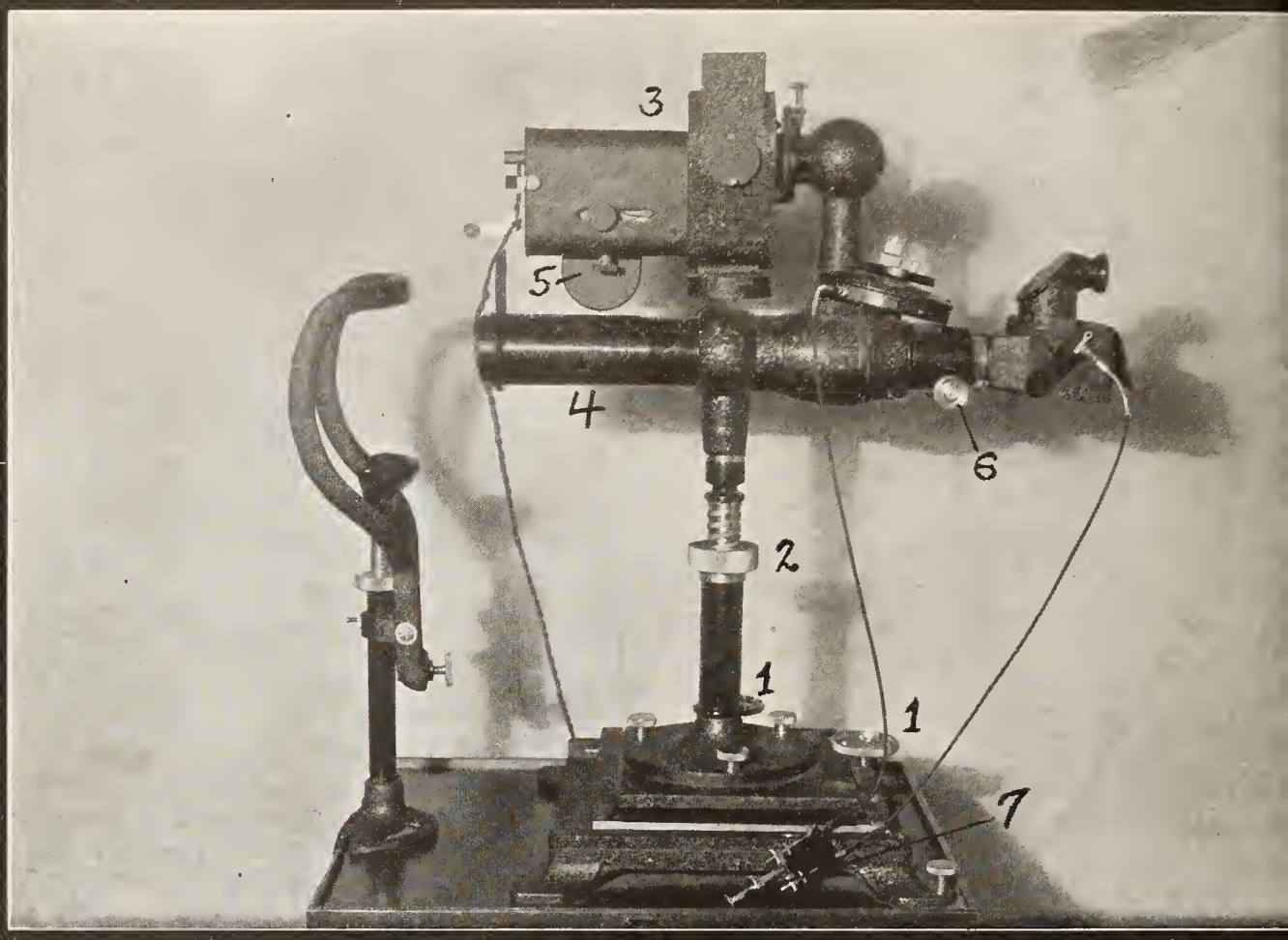
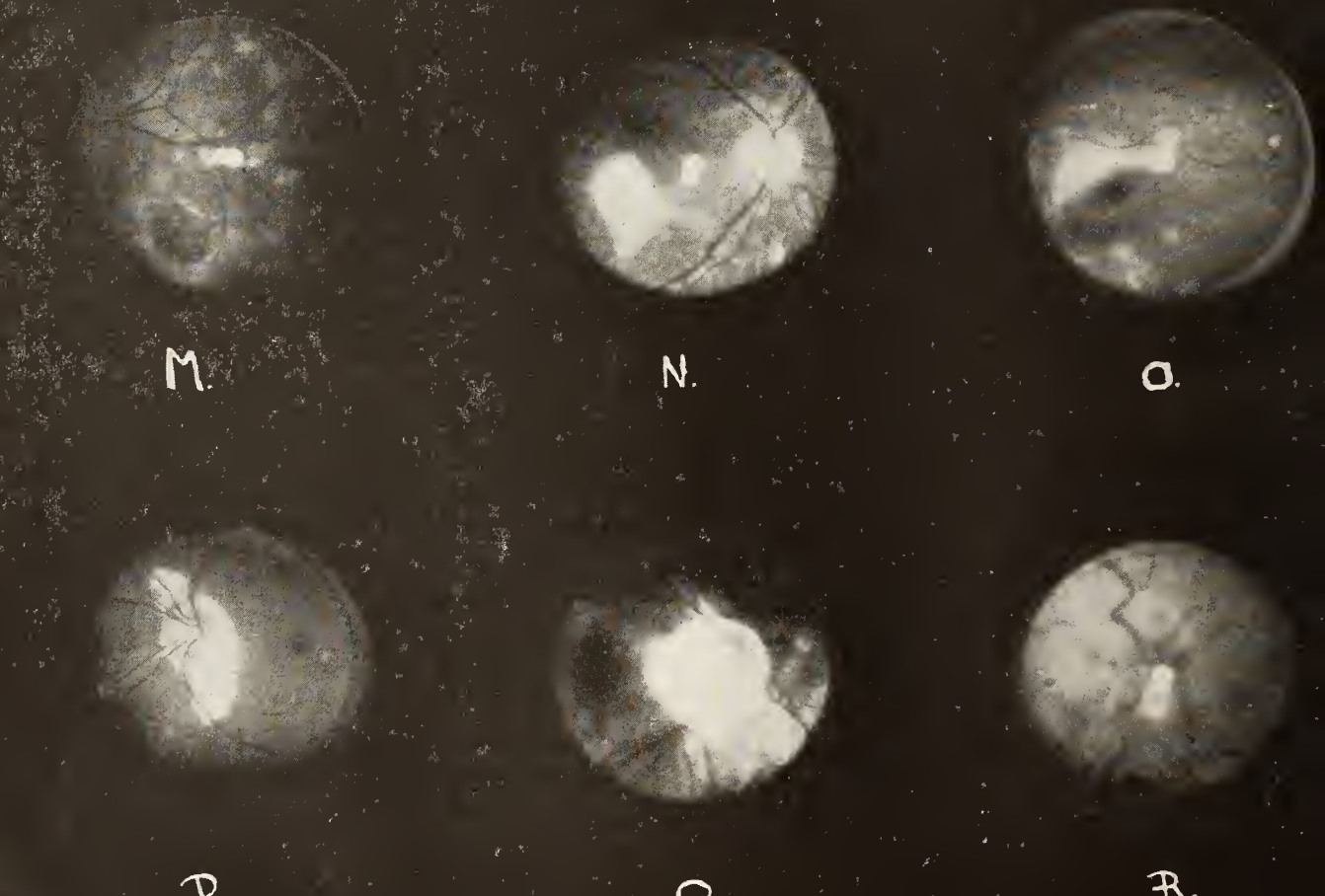


Fig. 1.



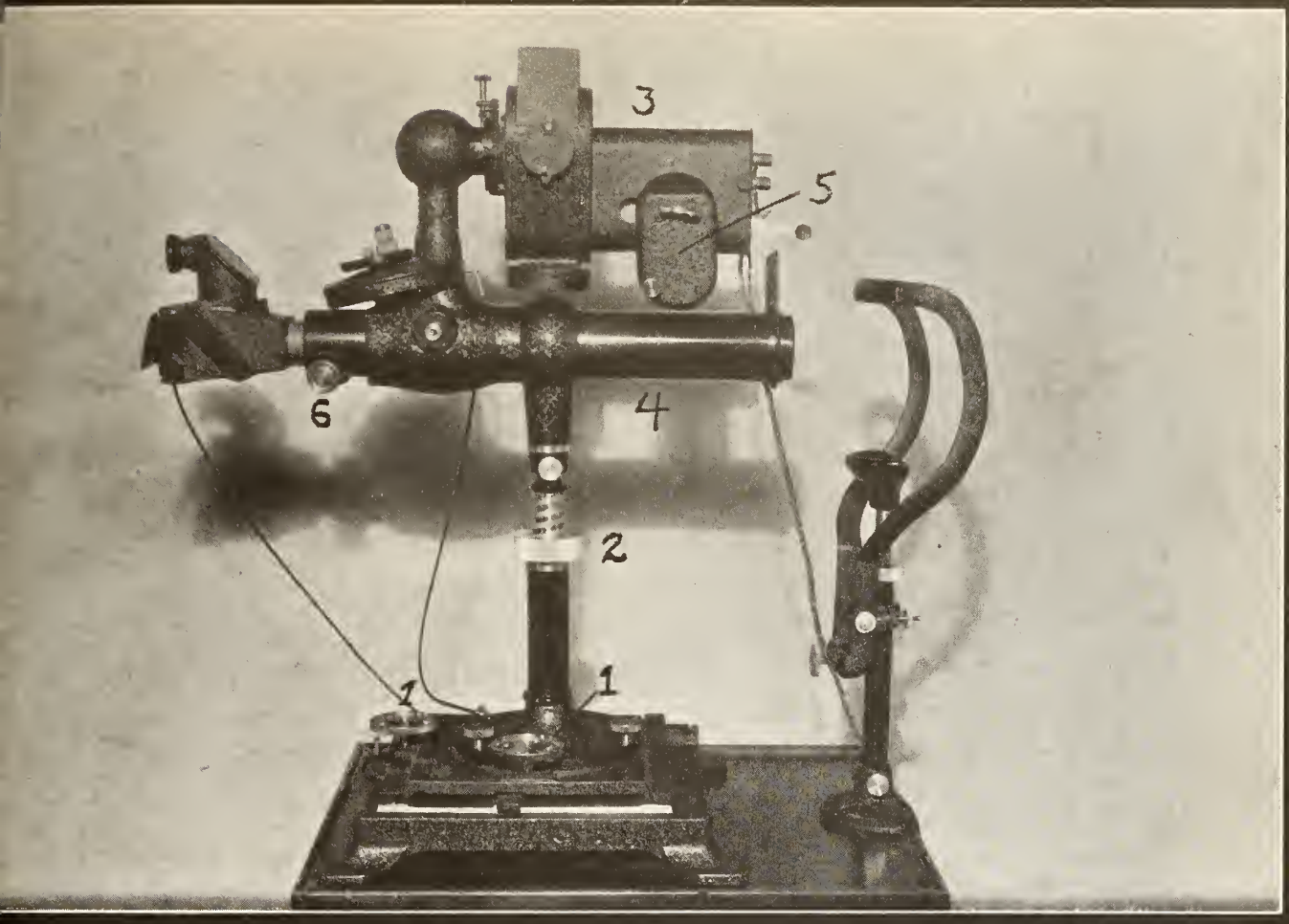
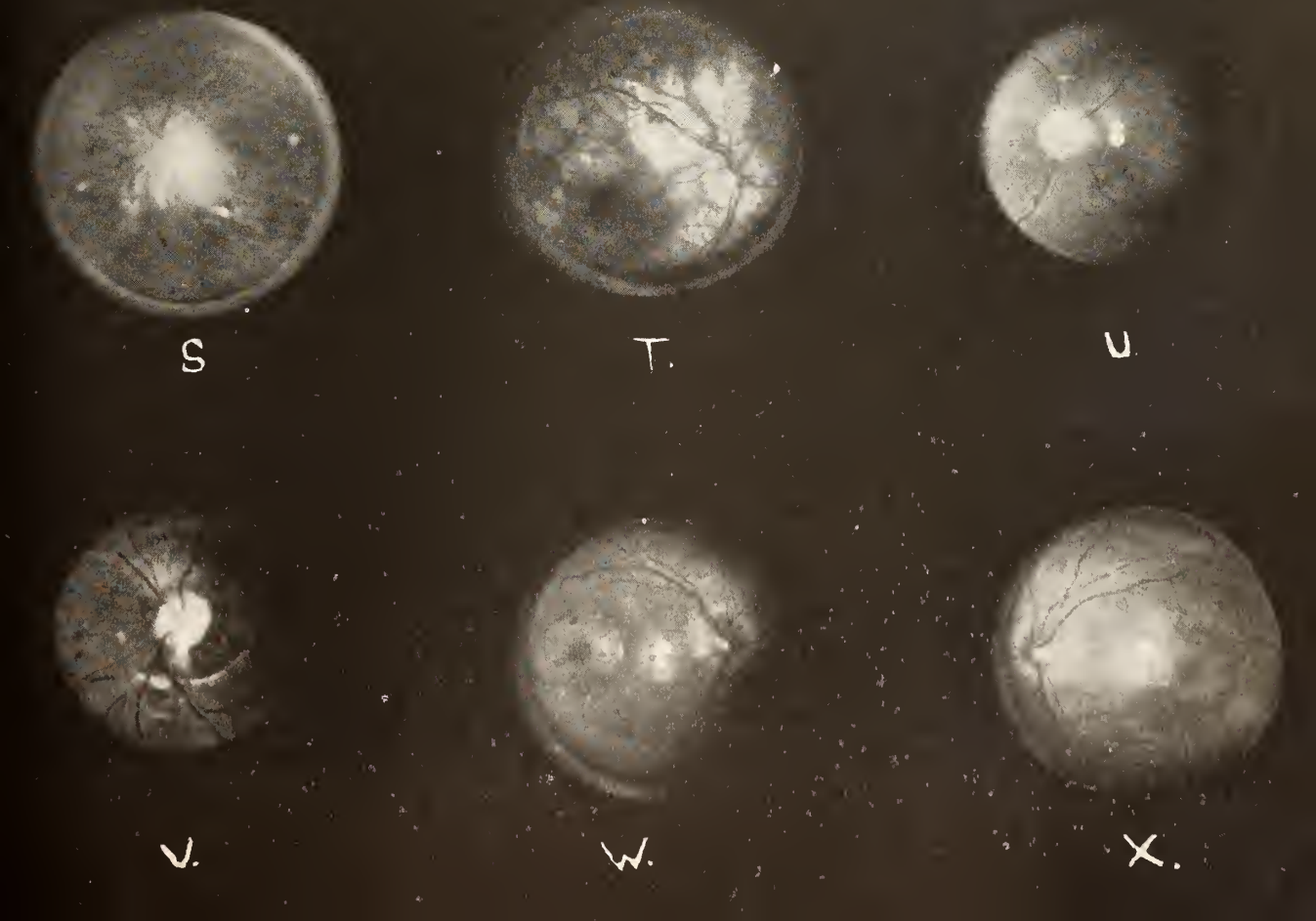


Fig. 2.



over our old methods cannot be disputed. The accompanying plates illustrate various ocular pictures.

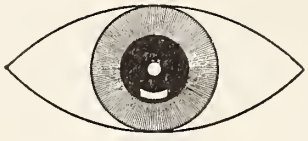


Fig. 3

ILLUSTRATIONS

The two white circles in the center of each photograph are reflections from the apparatus.

A. Normal fundus with light reflexes at edge of macula.
B. Normal fundus with light reflexes at edge of macula and bordering the blood vessels.
C. Exudate in retina on nasal side of optic nerve.
D. Senile degeneration of center of macula.
E. Extensive degeneration of macula.
F. Chorioretinitis to temporal side of macula.
G. Sero-fibrinous exudates in macula.
H. Sclerosis of choroidal vessels and degeneration of pigment epithelium in region of macula.
I. Senile degeneration of macula.
J. Isolated patch of chorioretinitis to temporal side of macula.
K. Extensive subretinal exudate in macular region.

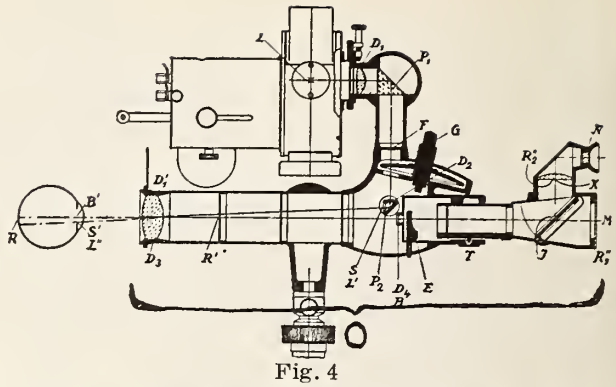


Fig. 4

L. Tuberculous chorioretinitis showing active and quiescent foci.
M. Syphilitic chorioretinitis showing active and quiescent foci.
N & O. Syphilitic chorioretinitis. Active stage showing exudates in choroid and retina.
P. Congenital coloboma of choroid near edge of optic nerve.
Q. Extensive myopic degeneration of choroid and retina. Correcting lens—20.00 sph = —1.50 C. ax. 175°.
R. Papilledema (choked disc).
S. Optic neuritis with exudates and hemorrhages.
T. Disseminated chorioretinitis. Quiescent.
U. Optic atrophy with marked contraction of arteries.
V. Rupture of choroid (Traumatic).
W & X. Bilateral degeneration of macula.

PLASTIC RECONSTRUCTION OF THE LOWER LIP

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In order to obtain a good and permanent result in the formation of a new lip two things are necessary: (1) The new lip must be lined with mucous membrane to prevent subsequent contraction and distortion; and (2) it must have muscular thickness to give it stability; in other words, it must be a "door" and not a "curtain."

Hence, the operations described in textbooks, in which flaps are obtained from the neck and elsewhere, are unsatisfactory, because they contain no muscle and usually are unlined with mucous membrane. One of the best of these operations is that recently described by Fairchild (Archiv. Surg., Oct., 1928), in which a flap is shoved straight up from beneath the chin and lined with mucosa from inside the cheeks; but it has the serious disadvantage of instability from lack of muscular tissue. A similar objection also applies to Tainter's ingenious procedure (not yet published), in which material for the new lip is obtained from the chest by means of a tubular skin-flap, with its pedicle in the lower antero-lateral aspect of the neck.

In my opinion the best operation is the one devised by Dr. W. W. Grant, formerly of Denver (Med. Record, 1899, vol. 55, p. 744. Trans. Western Surg. Assn. 1915, p. 225-6. His method was to make the new lip from the cheeks, and very gratifying results can be obtained in this way, because it contains sufficient tissue to give it an almost normal flexibility and stability. I have, however, found Dr. Grant's original technique (Fig. 1) not altogether satisfactory. The long incisions running obliquely downward onto the sides of the neck from the mouth lead to infection of the wounds. They also make the lip too broad when the flaps are slid up into place; and, in addition, when the flaps from the cheeks are drawn toward the median line objectionable puckers occur at the corners of the upper lip.

Hence, I have modified the procedure (1910) (Fig. 2) by directing the lower incisions straight outwards, parallel to the



Fig. 3—Before Operation



Fig. 4—Shortly After Operation

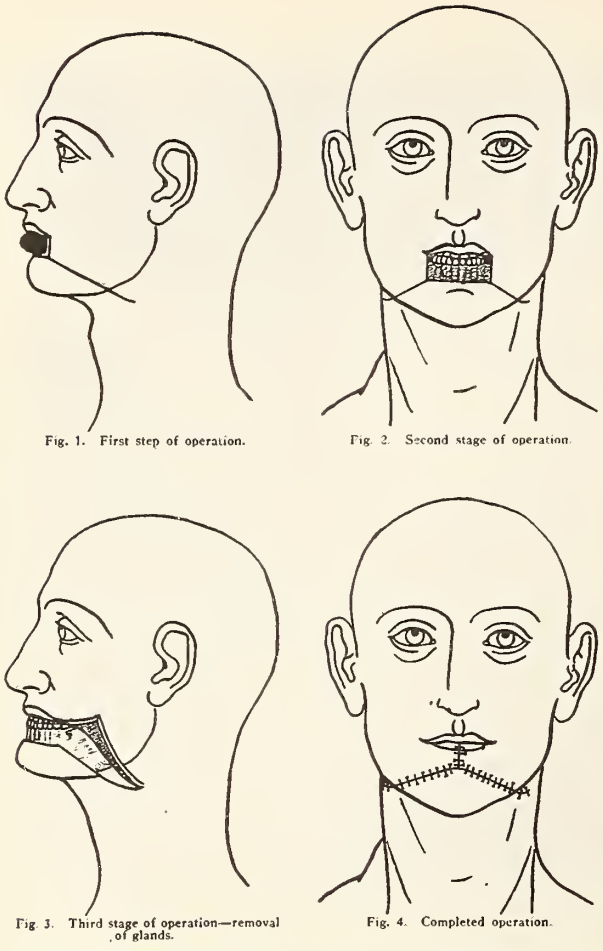


Fig. 1. First step of operation.

Fig. 2. Second stage of operation.

Fig. 3. Third stage of operation—removal of glands.

Fig. 4. Completed operation.

Fig. 1. Dr. W. W. Grant's operation (from Transact, Western Surg. Assn., 1915, p. 225).

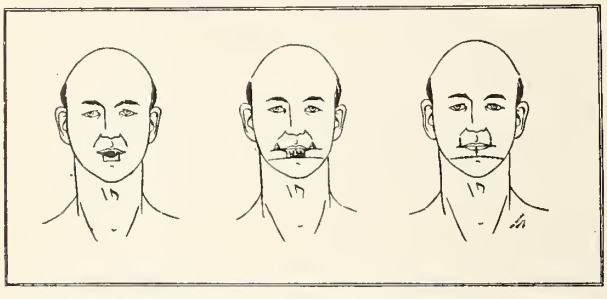


Fig. 2. Illustrating modification of Dr. Grant's operation.

upper ones. I also excise a triangle of skin and muscle from the cheeks just external to the upper lip, leaving the mucosa as a flap attached below, in order to furnish a covering of mucous membrane for the edge of the new lip. This flap can conveniently be separated by undermining with scissors from a small opening at the corner of the mouth before excising the triangle. In order to lessen the chance of infection in the neck I prefer to remove the submaxillary lymph nodes first, through separate horizontal incisions, which are closed with collodion before attacking the lip itself.

I have done eleven of these operations with gratifying results. The deformity, considering the circumstances, is surprisingly slight and the functional results are excellent, regarding both control of the lip and the retention of saliva.

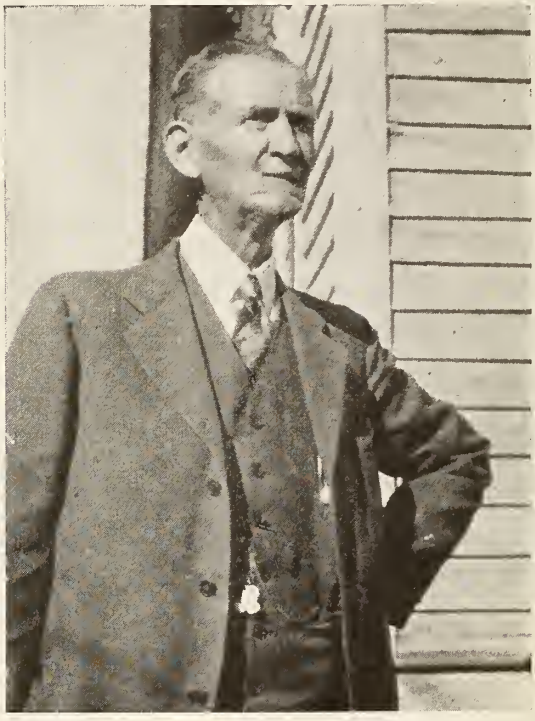


Fig. 5. Several months after operation for extensive cancer of lip.

A good example of the possibilities of this operation and the amount of tissue available, when necessary, is furnished by a young woman in the surgical service of the Colorado General Hospital, who had lost most of her lower lip from gangrene following the application of radium during the treatment of a large hemangioma (Fig. 3). I reconstructed the lip according to the modification of Dr. Grant's method just described, but the tissues had been so badly damaged by the radium that a large slough recurred. I then repeated the procedure and was able to get enough additional tissue from the cheeks, in spite of the large amount previously used, to obtain a reasonably satisfactory result (Fig. 4).

TREATMENT OF NON-UNION OF FRACTURES AT THE NECK OF THE FEMUR WITH TAPERED PINS

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Various appliances have been used to insure immobility of the fragments in this type of fracture. Some results have been obtained in nearly all of the methods applied, but the percentage of success has not been satisfactory. The type of fracture treated by this method must be one in which there has not been much absorption of the head, and the patient a good surgical risk, regardless of age.

Metal appliances such as pins, screws and nails, have been used in the past, generally for the purpose of immobolizing the fragments. Some operators have left the foreign body in the bone, others have removed the body after a period of time. The removal of the foreign body was for the purpose of allowing the growth of bone in the fracture. It being generally accepted that metal prevented growth of bone, because of the fact that it acted as a foreign body after it served its purpose as a splint.

The purpose of operating the three cases outlined in this paper is first: to use the pin to secure the fragments and hold them stationary for a period of time, similar to what we do in the clamp cases. This kind of pin is of the internal-external splint type. The pin end protruding through the skin two or three inches. The second purpose is to create stimulation of the bone cells of the two fragments in order to produce migration of the osteo-blasts.

Macewen[1] in his experiments on animals showed that an irritation produced by a foreign body, such as a metal pin driven into the medullary portion of the bone, caused the osteo-blasts of that portion to leave, proceeding through the Haversian canals into the space between the periosteum and the bone, where they multiplied. Macewen, stated that in the normal adult, in the space between the periosteum and the bone, very few if any osteo-blasts are present. While in the bone irritated with a certain stimulus osteo-blasts became numerous in this location.

In our work, in the use of the Parkhill-Freeman[2] clamps, as an external-internal splint to secure fragments temporarily until nature bridges across the fracture, we have found that these pins become loose in the bony tissue, from the first week on, and in a large number of instances can be removed with the fingers. This softening of the bone seems to occur more often in the pins most firmly set. The same information being given us by, Macewen, in his animal experi-

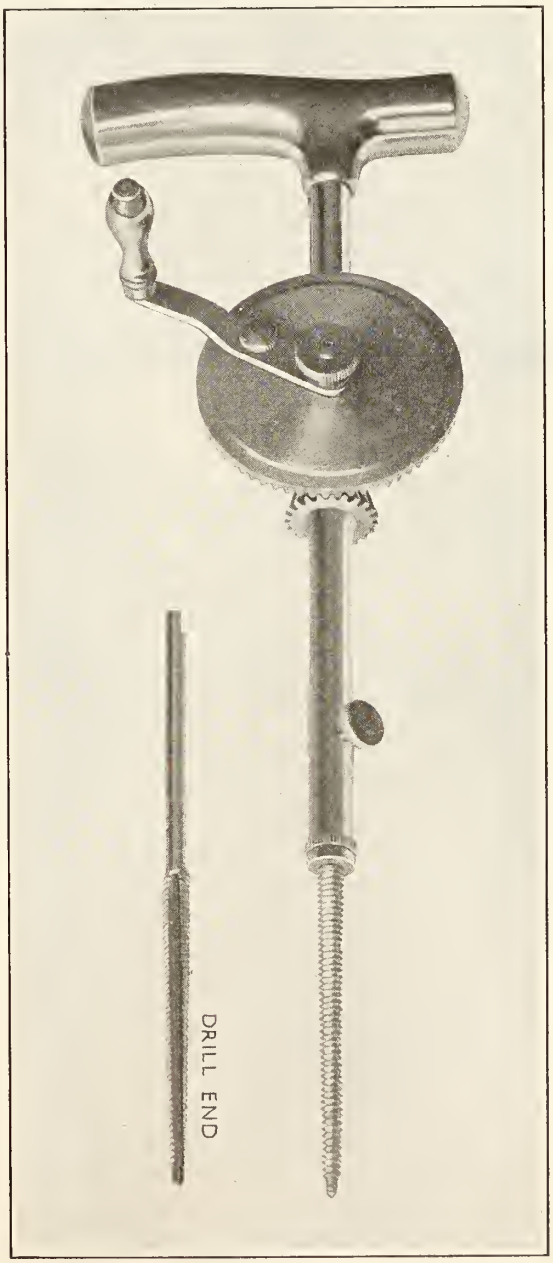


Fig. 1



Fig. 2

ments. It is reasonable to assume that such being the case as above described, experimentally, by Macewen, and our findings in the bone clamps, there is an increase in bone growth in the neighborhood of the fragments, due to the irritation of the pins. If this assumption is correct, and it seems a reasonable theory, then the foreign body should be removed after it has accomplished its two-fold purpose; one for fixation, and the other for stimulation as above described. In the few cases which have been operated on, the pin is removed during the fourth or fifth week. This experiment has not proceeded far enough to determine the final results. After the pin was removed in these cases the x-ray did not show any evidence of the former space occupied by the pin. It is well known that when we remove the pins in the shaft of a bone the x-ray shows the former cavity, which the pin occupied, for sometime afterward. We anticipate a slow growth of bone in these cases if we get results.

The first case (Fig. 2) was operated on Jan. 19, 1929. In that case the pin was driven through the trochanter major and into the head of the bone, and removed at the end of the fourth week. This patient was a robust, strong miner, 39 years of age, who had been treated by the Whitman method, and has been under observation for about one year. Prior to this attempt, nothing surgical having been done in an effort to secure union.

The second case, female, in good health, quite active, 65 years of age, who likewise was very desirous of having anything attempted that would give her a chance to secure union. In her case the fracture occurred about six months prior to the operation. The front of the hip was opened from the anterior-superior spine of the ilium, about four inches along to the outside of the sartorius muscle, down to the point of the fracture. Before the operation we were informed by the x-ray department that there was soft material between the fragments.

At the time of the operation this was verified, and the soft material between the fragments, found, about a centimeter in diameter, irregular in shape, and removed.

The third case, female, 53 years of age, had received no treatment for her fracture. Fracture being unidentified at first and she walked around on crutches for some time before going to a physician. This case is about nine months old. Showed some irregularity of the line of fracture, and a slight absorption. The patient being a very good surgical risk, and extremely anxious of getting some relief, was operated upon in the same way that the second case was done.

The pin (Fig. 1) used in the three cases was the same type as the modified pin of the Parkhill-Freeman[3] bone clamp, except that the pin is tapered from the diameter of ⅛ of an inch at the point to ⅜ of an inch; 3 inches from the point. This part of the pin having a course wood thread put on it to within ⅛ of an inch of the tip, the tip of the pin being made into a drill point. The pin from its widest portion abruptly terminates in a smooth pin about three inches long, at the end of which is a flattened part which is received into a Stille drill (Fig. 1), making it unnecessary to drill a hole into the bone before placing the pin. The pin cuts its own hole, and burys itself as it goes along. The smooth end of the pin being the part not engaged in the bone, and left protruding through the skin to facilitate its removal at the proper time. The pin in these three instances have been very easily removed.

In 1923, Henderson[4] reported forty cases of non-union in the neck of the femur. Ages between 21 and 64, the average being 46. The average duration of non-union being one and seven-tenths years. Metal nails were used in five cases with three good results. Beef bone screw in two cases with one result. The autogenous bone graft taken from the tibia or fibula in thirty cases, fifteen of which cases he termed cures. Of the total number above he thought fify-seven and five-tenths per cent, had bony union, fourteen showed no results.

BIBLIOGRAPHY

[1]Macewen-New Growth of Bone. 1912.

[2]Parkhill, Clayton: A new apparatus for the fixation of bones after resection and in fractures with a tendency to displacement: With report of cases. Tr. Am. Surg. Ass. 1897, XV 251. Also, West M. & Surg. Gz. 1897-98, i, 141

[3]Freeman, Leonard: The external bone clamp versus the internal bone plate in the operative treatment of fractures. J. Am. M. Ass., 1913, LVII, 92.

[4]Henderson, Non-union in fractures, massive bone graft: Collected papers. Mayo Clinic XV.

OSTEOMYELITIS

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Acute osteomyelitis is an inflammation of bone due to pyogenic organisms producing local and constitutional signs and symptoms. The infecting organism is usually blood-borne. It may result from disease of the adjacent soft parts as in middle-ear disease and sinusitis, and in infections of the finger leading to felon.

Osteomyelitis sometimes occurs in compound fractures and gun-shot wounds. The blood-stream infection may be due to any skin infection as pustular acne, furunculosis or carbuncle, and may arise from a blister or a burn. Contagious disease as scarlet fever, measles, chicken-pox or small-pox may cause it. Infections of the respiratory tract as tonsillitis, pharyngitis, pneumonia or empyema may be the source of the infection. Gastro-intestinal disease as cholecystitis, appendicitis or colitis may rarely be the origin.

In many instances the origin cannot be determined.

Most cases of osteomyelitis arise in early childhood and adolescence. Phemister quotes Trendel as finding 91 per cent in the first two decades. It is found more often in boys than girls as the former are more exposed to injury. Trauma is a very important factor in its onset. In early infancy umbilical infection has caused it. Exposure to cold or a foggy climate may be a factor.

The staphylococus is most often found in smears and blood cultures, and usually the



Fig. I

hemolytic variety, and the aureus twice as often as the albus. The streptococcus and the pneumococcus may be found. The typhoid and the colon bacillus are found less frequently. Winslow points out that .82 per cent of typhoid cases develop metastatic bone disease, and that, .45 per cent of all cases are typhoidal in origin. The influenza bacillus and gonococcus have been found.

The shaft of the bone near the epiphyseal juncture is the usual site of onset. In the adult any part of the bone may be the site. The proteolytic enzymes produced by the leucocytes dissolve the organic elements of the bone, while the lime salts seem to be removed by the action of the granulation tissue.

The favorite location is in the extremities,



Fig. II

the femur, the tibia, and the humerus are most often affected.

The disease may be localized or diffuse. The acute disease becomes subacute in two or three weeks, and then merges into the chronic form in due course, but it may continue to spread for many weeks. The diffuse form is more often seen. Owing to the nonelastic bone structure the infection is prone to spread along the medullary canal and outward by the Haversian system to the periosteum. It frequently spreads along the line of the epiphyseal juncture to the periosteum as pointed out by Clarence L. Starr. And, as it spreads under the periosteum it is likely to invade the interior of the bone by the Haversian system. The infection may rarely extend into the epiphysis. The epiphysis may separate early and dislocation occur.

When bone is destroyed in large amount it is detached as a sequestrum. Evidence of



Fig. III

bone absorption is usually shown by the x-ray toward the end of the first week. In cancellous tissue sequestration may occur in two or three weeks. The involucrum is the layer of new bone arising from the periosteum in the area of bone destruction, and the openings through it are the cloacae through which the inflammatory exudate is discharged. New bone is also laid down along the medullary canal like the endosteal callus in fracture. If the sequestrum is removed before the involucrum becomes dense the cavity may become obliterated.

A rarefying osteitis is an area of infected bone that is not destroyed, and may cause acute exacerbations.

A sclerosing osteitis is a low grade infection involving a considerable area of bone

with very little bone destruction. The inflammatory exudate may be absorbed, and there is considerable new bone formation, inclined to be spindle-shaped.

A localized osteomyelitis is common, and may be a primary focus, but more often is secondary to a diffuse involvement in another bone. The acute disease gradually subsides, but a cavity remains. This circumscribed abscess may persist for decades, or it may take on the form of a bone cyst.

Localized osteomyelitis with cavity formation is known as Brodie's abscess.

The disease may arise in an apparently healthy individual, but usually a focus of infection may be found. Acute osteomyelitis begins suddenly with pain in the area of infection or further down the bone. The pain is of a throbbing or boring character usually located at the end of the shaft, and is worse at night. The neighboring joint is not at first involved, but soon motion becomes more or less restricted. After the onset of pain constitutional symptoms develop: fever with or without a chill, the temperature may reach 103° F. or more; the pulse may go to 130° and higher; there may be headache, a dry tongue, nausea or vomiting. The patient may feel extremely ill, delirium or coma may occur in a child.

Local tenderness is found early, and within twenty-four hours swelling may be observed. Swelling may involve a large part of the extremity. As the disease extends the usual signs of inflammation develop.

A leucocytosis occurs, ranging from twenty to forty thousand with a polymorphonuclear count of 90 per cent. A blood culture may show a growth.

The symptoms tend to subside when the inflammatory exudate ruptures the periosteum. Fluctuation may then soon develop. After drainage has been established, and the infection becomes localized the disease enters upon a subacute stage.

Sinuses may form, and local recurrences may develop at different points. Occasionally, acute diffuse osteomyelitis may develop from a subacute or chronic form.

Silent foci may develop; Phemister has reported four lesions in one case. Local areas of sclerosing osteitis often seen in roentgenograms may produce no symptoms at the outset.

The x-ray is of no help in the early diagnosis. It will show no bone lesion till about the fifth day.

The disease is most often mistaken for rheumatism. It has been mistaken for phlebitis, lymphangitis, cellulitis, scurvy, hemophilia, purpura and anterior poliomyelitis. Tuberculosis must be borne in mind. A thorough examination of the patient is necessary.

Complications may arise from direct extension and by matastasis. Arthritis may develop, it may be serous or suppurative, and a pathological dislocation may follow. Lewis has shown in sixty-three cases involving the humerus that one or both joints were affected in 64.5 per cent. Tenosynovitis is common when the phalanges are affected.

Erysipelas and phlebitis may occur, the brain and meninges may be involved. Hematogenous spread to other bones may be seen, a selective affinity. Lung abscess and empyemia may result. Pericarditis and endocarditis are sometimes seen. Amyloid disease is a not uncommon result in the later forms.

Pathological fracture often happens. In 1882 Gross pointed out that endosteitis might produce abscess of the lung and liver. Acute osteomyelitis is a severe disease. In a young child it may prove fatal in two or three days. If a blood culture shows a staphylococcus hemolyticus over a period of about a week the prognosis is absolutely bad, about 100 per cent are fatal. The disease becomes subacute usually within three weeks, and then gradually merges into the chronic stage. But a diffuse osteomyelitis may be subacute for many months. The chronic stage of the disease in a large bone may continue for a score or more of years.

The acute localized form may clear up six to twelve weeks. Death frequently occurs from the complications.

Early operative treatment is indicated. Operation will tend to localize the disease if done within twenty-four to forty-eight hours after the onset, and will thereby save

much bone that would be destroyed if late operation were done. If early operation is the ideal treatment for acute appendicitis, it is even more imperative in acute pyogenic osteomyelitis. As the patient is severely ill, death from the shock of the operation may occur. The profession in this country has largely followed the teaching of Nathan Smith of New Haven, who, more than a century ago, advocated incision and trephining. It is good practice to make a small opening into the cancellous bone of the diaphysis if it is apparent that pus has not come through the bone in the exposed region or if there is little or no subperiosteal pus. Extensive opening of the medullary canal is unnecessary and may be harmful. Extensive curretage is harmful as living tissue may be destroyed.

In 1854 Chassignac advocated early incision down to the bone. This is the operation of choice in suitable cases.

That acute osteomyelitis sometimes subsides without operation is well known. Vaccines have been used with doubtful success. The intravenous administration of antiseptic has not proven of value in these cases. Convalescence serum has been used with some promise, but is not available sufficiently early.

Extensive acute osteomyelitis and suppurative joint disease may necessitate amputation.

The accompanying pictures show the progress of the disease in a child 9 years of age leading to epiphyseal separation and pathological dislocation. There is a history of influenza. The right sterno-clavicular joint showed a suppurative arthritis which healed after operation. The organism in both joint lesions proved to be the streptococcus hemolyticus.

BIBLIOGRAPHY-REFERENCES

Auchincloss, H.: Ann. Surg., 77:497, 1923.
Barwell, Richard: Int. Enc. Surg.
Gross, S.: Surgery.
Harvey, Jos. L.: Personal Communication.
Lewis, Dean: J. A. M. A., 92:783, 1929.
Mugrage, E. R.: Personal Communication.
Ochsner, A. J.: Cal. S. J. M., Jan., '24.
Phemister & Gordon: J. A. M. A., 87:1429, 1926.
Phemister, D. B.: Nels. Surg.
Starr, Clarence L.: Arch. Surg., 4:567, 1922.
Smith: Am. J. M. Sc., 1838.
Winslow, N: Ann. Surg., 77:389, 1923.

PHRENIC NERVE AVULSION AND ITS VALUE IN THE TREATMENT OF PULMONARY TUBERCULOSIS

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Pulmonary tuberculosis for generations has been purely a medico-sociological problem. In the vast majority of cases it still is. There are a considerable number of cases which are unfavorable from the onset and whose clinical course fails to improve under a prolonged conscientious medical and sanatorium regimen. If these cases are to be given the full benefit of our present knowledge of phthisotherapy, some measures must be added to the time tried and honored medical management.

Recent advances in the treatment of pulmonary tuberculosis have been confined largely, if not entirely, to the application of surgical procedures.

Phthisiotherapists have for years confined their efforts to watchful waiting tactics. They are loathe to adopt an active or aggressive policy. Small wonder the more drastic surgical procedures of absolutely proven value have not been more generally or more timely invoked.

Carson[1], the first to advocate induced pneumothorax, prophesied in 1821: "If ever phthisis is to be cured, it must be accomplished by mechanical means."

It took about sixty years to convince the profession of the advantages of induced pneumothorax. Forlanini[2], in 1884, by his clinical observations, proved the prophecy of Carson. Valuable as induced pneumothorax is, it has limitations. Other surgical procedures have been developed to supplement, never to replace or to supersede, medical and sanatorium treatment. Surgery can never eradicate tuberculosis, but it does have

a very important field in selected cases which, without its aid, certainly will die.

The least formidable of the surgical operations is that of phrenectomy or phrenic nerve avulsion. Operations on the phrenic nerve were first performed by Stuertz[3], later thoroughly studied and elaborated by Felix[4], and called by him phrenic exaresis.

Phrenic nerve avulsion is a comparatively minor operation performed under local anesthesia. It frequently leads to marked improvement. This improvement, as a rule, is but temporary. In exceptional cases, a clinical cure may be effected.

The purpose of phrenic nerve avulsion is to secure localized physiological rest by paralyzing the corresponding half of the diaphragm.

Paralysis of half the diaphragm eliminates its piston-like action with each respiratory cycle. The paralyzed diaphragm atrophies and rises in the thorax, diminishing, thereby, the capacity of that half of the thorax. Adhesions at the base, fibrous bands not only at the base, but also those extending upward toward the apex of the lung, are relaxed. The work of the corresponding lung is diminished. Its circulation of blood and lymph is retarded. Toxins of lesions within the lung and pleura are more localized. The gaseous interchange within the lung is diminished. The lung is placed in a condition of partial rest. Rest is recognized by all authorities as necessary for improvement and cure.

The inactive diaphragm retards absorption from the pleura. The rate of absorption of air from the pleural cavity in cases of induced pneumothorax is decreased; hence air refills are less frequent and the pneumothorax is more effective. Intra-pleural and intra-pulmonary tension and stress is diminished and less dangerous.

The cough reflex is less sensitive. The paralyzed atrophied diaphragm offers little resistance to upward intra-abdominal pressure. The intra-abdominal pressure makes the cough much more effective in clearing the lung and bronchii of secretions.

The corresponding lung being at rest throws a greater amount of work on the contralateral lung. This is a valuable test of its capacity to assume the burden of respiration. This increase in function of the contralateral lung tests the status of suspicious or quiescent lesions that may be present therein. From these observations, deductions can be made as to the advisability of performing more formidable operations for surgical collapse.

Indications

(1) As an adjunct to pneumothorax.
(2) As a test of the status of lesions within and the respiratory capacity of the contralateral lung preliminary to thoracoplasty.
(3) Unilateral lower lobe lesions.
(4) Extensive unilateral disease with slightly active or quiescent lesions in opposite lung.
(5) When adequate pneumothorax cannot be induced.
(6) When thoracoplasty is inadvisable.
(7) In non-tuberculous lower lobe lesions, bronchiectatic or other suppurations not controlled by pneumothorax.
(8) As a preliminary stage to operations for diaphragmatic hernia.

To be permanently effective, at least 4 to 4½ inches of the nerve must be avulsed in order to interrupt the accessory phrenic nerves which are present in approximately 25 per cent of individuals.

Briefly, a successful phrenic nerve avulsion rests the corresponding lung, relaxes adhesions and fibrous bands, reduces the volumetric capacity of the half of the thorax one-sixth to one-third, favors collapse and contraction of cavities whose walls are not thick and rigid, controls and makes more effective the cough and diminishes the amount of secretion and lessens toxemia.

Therapeutic Results of Phrenectomy in Thirty Consecutive Cases

In evaluating results, an account must be given of the indications in each case. It should here be emphasized that many patients were not suitable for either pneumothorax or thoracoplasty. In many patients, the object aimed to accomplish by the operation was purely palliative. It is, therefore, deemed practical to group the cases accord-

ing to the indications and analyze in each group the end-results.

1. **Basal lesions:** In this group there were six cases. Of these, two had right lower lobe suppurations of undetermined origin, possibly post-influenzal. One was a young girl of 17, who had had excessive cough and sputum from childhood on. Shortly after the phrenectomy, the cough became less harassing and the sputum easier of expectoration. There has, thus far, four weeks after the operation, been no reduction in the sputum. Her general condition is much improved. The second case, a man 45 years old, had persistent and recurring hemoptyses and harassing cough. He has been practically symptom free for the last nine months.

Of the four tuberculous cases, one had a localized right-sided basal cavity with active symptoms, such as subfebrile temperature, thirty ccs. of bacillary sputum and considerable cough. Now, three months after the operation, the temperature is normal, the sputum has been reduced to ten ccs., and is negative for bacilli. The other three cases had bilateral upper lobe lesions, with active involvement of one of the bases. There was symptomatic relief in all, such as reduction of cough and sputum, cessation of vomiting and, particularly, greater ease of expectoration.

2. **Unilateral upper lobe lesions with Pneumothorax failures:** The series here is small, only two cases, but the fact that in both patients there was a practical cure accomplished to the extent of their becoming free from cough and sputum and being able to work, is a record worth reporting. The x-ray plates show clearance of the infiltration and probable disappearance of cavity in one case.

3. **Empyema with bronchial fistula—two cases.** One of these patients had a subsequent lower stage thoracoplasty performed, resulting finally in complete cure. It is believed that the phrenectomy contributed greatly to the successful closure of the bronchus. The second case was operated upon only four weeks ago, and while there has been noted some symptomatic relief, a partial thoracoplasty will eventually become necessary.

4. **Incessant cough and vomiting, attributed in part to basal adhesions.** The six cases under this heading had extensive bilateral lesions, with major activity in one lung which could not be collapsed on account of pleural adhesions. Symptomatic relief was obtained in all with a recurrence of symptoms in one case. The general course of the disease became stationary in three and progressive in three in from three months to one year after the operation.

5. **Obliterating pneumothorax with persistent effusion.** In the two patients who were operated upon for this condition, there was a relatively rapid absorption of the effusion with no recurrence. One became sputum free and is now well and working; the other is incapacitated chiefly on account of acitve intestinal symptoms.

6. **Upper lobe lesions with cavitation which could not be treated by either pneumothorax or thoracoplasty.** A satisfactory pleural space could not be found in these five patients. The three who were deemed suitable for thoracoplasty were also considered to be operative risks; hence the operation was not strongly urged. The other two had apical cavitation in the so-called better lung. Of the total number, four had a reduction in sputum from one-half to one-third, marked decrease in cough and greater ease of expectoration. There was likewise an improvement in their general condition. The fifth case developed an extension of the lesion on the operated side.

7. **Preliminary to thoracoplasty and to test efficiency of contralateral lung.** Of the seven patients in this group, four manifested improvement as regards cough and sputum after the phrenectomy to such an extent that they were unwilling to submit to the major operation. In two of these, the improvement was only temporary, notwithstanding the fact that there was a marked elevation of the diaphragm. However, the large and thick-walled apical cavities seemed unaffected. On the contrary, there appeared to have occurred some interference with proper drainage, as the cavities showed on subse-

quent repeated fluoroscopic examinations a level layer of fluid. Of the total number, four have since had thoracoplasties, and three are still under observation. Of the latter three, one is greatly improved, the sputum having been reduced from 90 ccs. to 30 ccs., and the other two have had only a slight reduction in the amount of sputum, but are very much gratified over the greater ease with which they raise the sputum. In only one of these cases—and this holds true of the entire series reported—was there a reactivation of the contralateral lung. As noted above, there was an extension of the lesion on the operated side in only one case.

Summary

In a group of thirty patients with far advanced pulmonary tuberculosis who were subjected to phrenectomy for a variety of indications, the results justified the procedure in practically every case. The most constant symptomatic relief was cessation of vomiting, decrease in cough, reduction in sputum, and greater ease of expectoration. The latter manifestation was noted by every patient, and in the majority the amelioration of one or more symptoms seemed permanent. Complications such as described by other observers; namely, hemorrhage, reflex cardiorespiratory disturbances, dyspnoea, mediastinitis, cold abscess and hemoptysis, have not occurred in any of our cases. No noteworthy difference in results have been noted between the sexes, although one would expect better results in women because of their predominant type of abdominal breathing. Patients with basal lesions obtained most beneficial results, but nearly equally good results are possible in upper lobe lesions where there are no pleural adhesions and the parenchyma is not involved in a too extensive fibrocaseous process. The conclusion is justified that phrenectomy is a valuable palliative procedure for certain symptoms otherwise uncontrollable, and may prove curative in properly selected cases.

BIBLIOGRAPHY

[1]Carson: Essays Physiological and Practical, 1822.

[2]Forlanini: Surgery Pulmonary Tuberculosis, Alexander, p. 26.

[3]Stuertz: Deut. Med. Woch., 1911, v. 37, pp. 22-24.

[4]Felix: Chir. der Brustorgane (Sauerbrauch), 1920.

TREATMENT OF BURNS WITH TANNIC ACID

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Tannic acid as a primary treatment for burns was first reported by Davidson[1] of Detroit. He believed after a study of experimental work that the cause of the severe reaction and early death in cases of burns is the absorption into the blood stream of toxic products formed in the burned areas. In order to prevent this absorption, he sought for a non-toxic protein coagulant and began using compresses wet in tannic acid solution with excellent results.

His conclusions were (1) tannic acid compresses followed by dry air lessens toxemia; (2) wet boric dressings cause return of toxic symptoms; (3) tannic acid as an initial dressing is analgesic; (4) subsequent open air treatment causes minimal trauma; (5) the dry coating lessens loss of body fluids; (6) secondary infection is limited by the absence of a favorable nidus for bacterial growth; (7) there is less scar tissue formation; and (8) the protective layer of coagulated protein forms a scaffolding for epithelial growth.

Tannic acid is an amorphous powder readily soluble in water. It precipitates proteins, alkaloids and some glucosides forming a more or less stable compound with the protein constituents of the body fluids and cells. When it is applied to a freshly burned area it forms a tough, leathery black coating by its chemical action on the burned tissue. In dilute solutions it does not penetrate deeply but does have a caustic action if sufficiently concentrated.

Clinically the reddened or grayish areas of the fresh burn rapidly become dry following the application of tannic acid, and in a few more hours become brown and then black, the whole burned thickness taking



No. 1. Case No. 1. Burns of abdomen and leg after three days of tannic acid spray.

on a tough and leathery consistency. This change may take place in 16 to 24 hours in fairly superficial burns or may not be complete for three or four days in deep burns. Along with the drying and hardening of the burn comes a disappearance of the pain so that rubbing or even lying on these areas is not uncomfortable. Also at the same time the toxemia steadily lessens and is usually entirely gone by the third or fourth day. These black, tough areas of coagulated protein are firmly adherent to the underlying tissue and do not loosen up until they are cut or until the epithelium grows beneath them from the edges.

As soon as a burned patient is received at the hospital, he is given morphine if necessary and placed in bed with burns exposed under a cradle and warmed with an electric bulb. Every one-half hour the burns are sprayed[2] with a 2½ per cent aqueous solution of tannic acid until the areas are colored a dark brown or black, the length of time demanded depending upon the depth of the burn. As soon as drying is complete, the use of the tannic acid is discontinued and the tanned areas are left exposed to the air. If preferred, one may use compresses wet with tannic acid solution instead, but tanning takes place more rapidly with the spray. Also it is easy to use the spray on the face and ears where compresses are not practicable.

The drying by exposure to air is almost as important a part of the treatment as is the tannic acid. If the burn is thoroughly dried throughout its entire depth, the covering may be left until epithelialization takes place beneath or, when preferable, the coating may be cut away in part or in whole to receive skin grafting. In some of the more extensive and deeper cases, it sometimes happens that drying is not complete throughout and an area of liquid toxic material is left covered with an airtight crust. This may result in an alarming increase of toxicity on the 3rd to 5th day and demands immediate removal of the overlying crust to allow drainage and relief of the toxemia.

Instead of leaving the areas dry after the first week, it is possible to change to various emollient dressings to act on the crusts. Ointments tend to macerate the coagulum and do not seem to hasten separation. Dry



No. 2. Case No. 1. Burn of arm after threedays of tannic acid spray.

dressings or exposure to air are probably preferable.

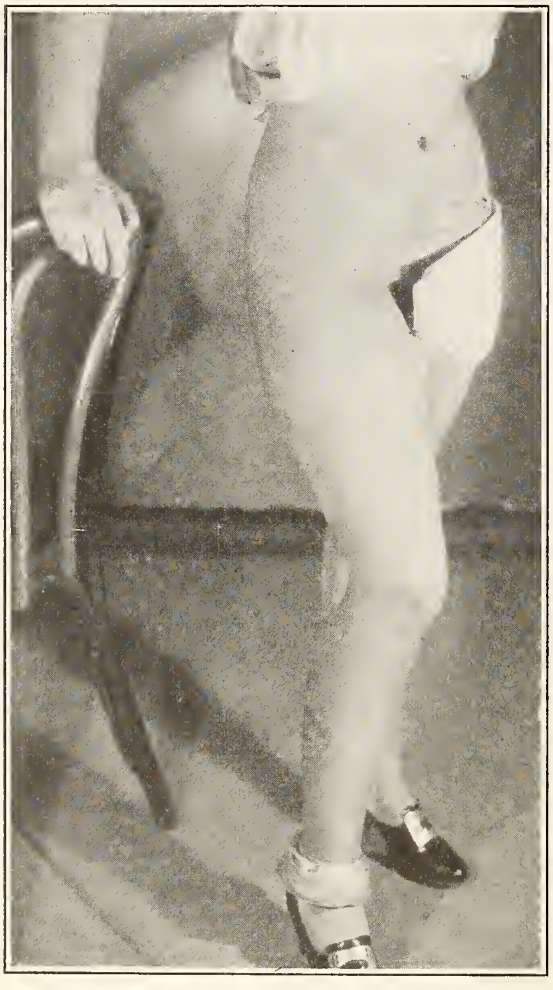
It should be added that tannic acid solution should be freshly prepared. An old solution soon decomposes into gallic acid which has a much weaker coagulating effect.

The use of tannic acid in a few selected cases has been most satisfactory and appears to be one of the best methods of treatment for the average bad burn requiring hospital care. Our clinical conclusions have been generally as follows: Tannic acid spray soon seals the burns and gives astonishing relief from pain, similar in its anodyne effect to the paraffine preparations. In this the spray seems preferable to the compresses as dressings do not have to be changed and drying takes place more rapidly. The comfort continues, sheets or dressings do not stick to the burn, and the patient can lie part of the time at least on a burned back. As soon as coagulation is complete, toxic symptoms disappear as judged by temperature, urine and blood chemistry. There is no toxic absorption of the drug so that it can be used without danger over the most extensive burn, while other known coagulants such as picric acid for example have a coagulating action on burned areas but are toxic and cannot be used extensively. Infection is less apparently due to the protective coating and there is not the discharge and pus as seen in most ointment dressings. Whether healing is more rapid or scars less marked than with other methods, our cases are too few to form a conclusion.

There are some disadvantages. As mentioned above, there is a real danger in deep burns, if the possibility is not kept in mind, of absorption of liquid toxic protein products covered by a tough superficial coating on about the third day, but whenever toxic symptoms appear after the first two days, the symptoms can be immediately relieved by cutting away some crusts or incising them to allow drainage of the toxic liquid. Other disadvantages are probably limited to the considerable nursing care needed for maintenance of even heat, frequent spraying, or changing of compresses. All burns should have plenty of nursing care so that a little more the first three days in the tannic acid treatment followed by a little less when the

coating becomes solid will probably not average more than in other methods.

Two of the cases handled during my term of service have been selected as typical of the course of treatment. Results were most satisfactory as is well shown in the accompanying photographs. I do not enjoy "before and after" photographs as a rule, but nothing else will show as well the way in which tannic acid acts. I do not know what treatment has the preference on the other



No. 3. Case No. 1. Leg and abdomen just before discharge

surgical services of the Colorado General Hospital so that these conclusions and opinions are only my own.

CASE REPORTS

1. C. S., Colo. Gen. Hosp. No. 4740, girl, aged 12. Admitted August 27, 1927. Burned in gasoline explosion. Second degree burns of abdomen, right arm, and right leg from hip to toes, first degree burns on legs. Gave appearance of a very serious case. Treated with 3 per cent tannic acid compresses and later by spray for four days. Highest temperature in hospital was 102 degrees;



No. 4. Case No. 1. Arm just before patient's discharge.

there was no albuminuria. Discharged practically healed on September 16, 1927. See accompanying photographs.

2. F. S., Colo. Gen. Hosp. No. 4742, woman, aged 27. Admitted August 27, 1927. Burned in gasoline explosion. First and second degree burns of both legs. Treated with 5 per cent tannic aid spray for five days. Dismissed practically well on September 6, 1927. See accompanying photograph.

BIBLIOGRAPHY

[1]Davidson, E. C.: Tannic Acid in the Treatment of Burns. Surg., Gyn., and Obst. 41:202, 1925.

[2]Powers, J. H.: Burns Treated by Tannic Acid. Ann. Surg., 84:19, 1926.



No. 5. Case No. 2. After two days of tannic acid spray.

GOLD SODIUM THIOSULPHATE IN THE TREATMENT OF LUPUS ERYTHEMATOSUS

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Lupus erythematosus has long been regarded by dermatologists as one of the most intractable and disfiguring of the major disorders of the skin. Its treatment has included practically every measure known to the profession, all of which have heretofore proven unsatisfactory, destructive measures having been frequently resorted to which not only failed to cure the condition but often aggravated it, and always resulted in increased scarring and disfigurement. Regarded by many as definitely related to tuberculosis, if not actually a manifestation of that disease, it is now considered by most observers to be a cutaneous reaction to circulating toxins derived from a variety of internal disorders, some of which are undoubtedly of an infective character, including tuberculosis. The eruptive process clinically resembles erythema multiforme, the lesions of lupus erythematosus, however, are permanent with telangiectasia and succeeding areas of central depression and atrophy. These lesions do not show the histological structure of tuberculosis, nor have tubercle bacilli ever been isolated or cultured from them, moreover, the condition characteristically occurs in individuals in whom there is no history or demonstrable evidences of tuberculosis. However, regardless of its exact cause, its alleged relation to tuberculosis led to the development of a practically specific form of treatment; that is, the use of gold and sodium thiosulphate.

Gold has long been used in the treatment of tuberculosis, but in 1890 Robert Koch gave a scientific basis for this procedure by demonstrating the strongly bactericidal effect of gold compounds on the tubercle bacillus. Such preparations have been given wide use in the various forms of tuberculosis, it being but a step further then to its use in lupus erythematosus because of its supposed tuberculous nature. The earlier preparations used being highly toxic, their use was not considered justified in a disorder that, of itself, is rarely fatal. More recently Schamberg and Wright of Philadelphia were led to the employment of gold sodium thiosulphate because of its moderate toxicity. Early in 1927 they published a paper reporting a series of cases in which no other treatment than gold sodium thiosulphate was used. Since then this preparation has been widely used and enthusiastic reports from dermatologists the world over are confirming the claim of Schamberg and Wright that in gold sodium thiosulphate "we possess a systemic remedy of real efficacy."

There is presented herewith the following summary of our experience during the last two years with the use of gold sodium thiosulphate in the treatment of lupus erythematosus seen in private and clinical practice.

Thirty cases have been treated in this series.

No one of these failed to show improvement.

Three cases developed severe reactions during the course of treatment in two of which focal infections were evidently the precipitating cause, and in the third an acute influenzal infection.

Clinical cures have resulted in all but three of this series, these cases being of many years duration and much altered by previous treatment.

A careful general examination should be made to determine if possible the existence of any localized infective process or organic disease, and efforts should be directed toward removal of such conditions before beginning the course of treatment. This is especially important as focal infections lying dormant may become activated during the treatment and precipitate more or less severe reactions evidenced by an erythematous eruption, erosive lesions of the buccal mucosa, edema under the eyes or of the hands and feet, or other signs of a generalized toxemia; and intercurrent acute infections, such as influenza may bring about a similar picture.

While such reactions are, of course, to be avoided on account of their severity, still it is frequently observed that when they do occur, the original condition often shows more marked improvement after they subside than in those cases in which no reactions occurred during treatment.

Treatment should begin with small amounts, an initial dose of 25 mgs. in 2 cc. of sterile water given intravenously.

Treatments are given once each week, each dose increased by 5 mgs. providing no toxic effects followed the preceding injection. The maximum dose should not exceed 100 mgs.

Treatment may be given continuously as long as improvement is observed and no deleterious effects are induced. In case the condition becomes stationary after a reasonable period of treatment, it is advisable to discontinue the administration of the drug entirely for one or two months when it may be resumed with the probability of further improvement.

Gold sodium thiosulphate is indicated in the treatment of practically every case of lupus erythematosus. It should not be lightly undertaken, as its employment is not unattended with danger, but if used cautiously in selected cases, gives excellent results and may be considered as the most promising therapeutic method now available in the treatment of this most recalcitrant disorder.

ADENOMA OF THE SUPRARENAL GLAND WITH HYPERTENSION

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Numerous cases of hypertension associated with tumors of the suprarenal gland have been reported since Neuser[1] in 1898 reported two cases of hypertension with nephritis, which showed at autopsy to have carcinoma of the suprarenal gland.

Although there is much experimental work which tends to discredit the theory that blood pressure variations may depend on destruction or stimulation of the suprarenal glands; there seems in the following case and in others in the literature, to be a definite connection between tumors of the suprarenals and hypertension. Rogoff and Dominguez[2] conclude after blood pressure studies on nineteen suprarenalectomized rabbits. "In the rabbit extirpation of the adrenals is followed by no remarkable change in blood pressure except when the animal is moribund. Seecof and Shapiro[3] with carefully controlled experiments report the same findings. Clinical cases of hypertension associated with suprarenal tumors have been reported by Aubertin and Ambard[4], Oppenheimer and Fishberg[5] and others. The following case is in line with cases reported by other observers:

The patient, a Mexican female, aged 48 years, was admitted to the Colorado General Hospital on January 31, 1925, with the chief complaints of (1) Anginal pains and palpatation of the heart. (2) Weakness and contraction of the left extremities. (3) Dizziness. (4) General weakness.

Family History: Negative.

Past History: The patient had influenza in 1918. Edema ten years ago.

Present Illness: The anginal pains and palpatation of the heart dated from December, 1924. Since then the patient has been dizzy and weak. The weakness and contraction of the left extremities followed closely the onset of the symptoms in December.

Physical Examination: The patient is mentally dull. The left arm is contracted with atrophied muscles. The left leg is similar. The pupils react actively to light and accommodation. They are 2 mm. in diameter. The lungs on admission are clear. The heart is enlarged to the left and downward. The sounds are strong; no murmurs. The blood pressure is 240 mm. systolic, 110 mm. diastolic. The urine showed no albumin or casts except on April 3rd when there was a faint trace of albumin and an occasional coarsely granular cast. The blood examination shows 55 per cent hemoglobin with 3,400,000 red blood cells and 6,200 white cells. The total non-protein nitrogen is 46 mgm., urea nitrogen 25 mgm., uric acid 4.16 mgm., creatinine 2.04 mgm. The patient's general condition improved somewhat until March 25th, when she had a convulsion resembling grand mal. The attack lasted twenty minutes; the patient was unconscious, breathing with difficulty and she bit her tongue. Following this attack she was stuporous for several days. Her condition became gradually worse and she died on April 24th. The temperature, which had previously been normal, rose to 107° F. before death. The blood pressure varied from 216 mm. to 245 mm. systolic and 110 mm. to 140 mm. diastolic.

The autopsy revealed cardiac hypertrophy, atheromatosis of the aorta, adenomata of the

suprarenals, chronic nephritis, bronchopneumonia left, and old hemorrhages of the right thalamus. The microscopic notes made by Dr. Seecof: Heart: Muscles fibers hypertrophied. Large area of free hemorrhage underneath the endocardium.

Lung: Bronchopneumonia, purulent bronchitis.

Liver: Slight fatty infiltration, moderate brown atrophy.

Aorta: Marked fatty, fibrous and hyaline thickening of intima.

Pituitary: Marked congestion anterior lobe.

Spleen: Moderate congestion. Marked fibrous and hyaline thickening of capsule; malpighian bodies normal. Vessels show marked hyaline thickening of intima.

Kidney: Marked distortion of architecture by presence of cellular scarred areas. The glomeruli show extensive fibrotic changes; many are replaced by hyaline scars. The tubular epithelium shows all stages of fatty degeneration. The larger vessels show moderate degrees of intimal thickening, the smaller vessels show marked thickening of all coats, many are almost obliterated. In one section the mucous membrane of the pelvis shows the proliferative reaction of "pyelitis cystica."

Suprarenal: Typical cortical adenoma—cells heavily staining and fatty.

This case presents the typical anatomical findings of long standing hypertension, with the exception of the suprarenal pathology. Since no workers have been able to consistently produce hypertension in experimental animals, it is impossible to say whether the kidney and blood vessel disease or the suprarenal disease was the causative factor. However, ample experimental work tends to bear out the belief that arteriosclerosis and nephritis are results rather than causes of hypertension. H. C. Anderson[6] found "that destruction of 70 per cent of renal tissue in the rabbit was not accompanied by arterial hypertension, even when prolonged renal insufficiency resulted. By inference, then, the atrophy of renal tissue in chronic glomerulonephritis in the human is not the cause of the accompanying arterial hypertension." Moschkowitz[7] states that: "Many facts tend to show that hypertension should be considered perhaps the most important factor in the production of arteriosclerosis. It seems that here, too, the renal lesions may be the results rather than the causes of hypertension."

Conclusions

Many cases of hypertension associated with suprarenal tumors are reported in the literature. Since there is ample experimental work to support the belief that arteriosclerosis and nephritis result from, rather than cause hypertension; the presence of a suprarenal tumor must be considered as a possible etiologic factor in hypertension.

BIBLIOGRAPHY

[1]Edmund Neusser: Nothnagels Spezielle Pathologie und Therapie. Vienna, 18-71, 1898.

[2]Rogoff and Dominguez: Jour. Metabolic Research, Vol. 6, 141.

[3]Seecof and Shapiro: Unpublished.

[4]Aubertin and Ambard: Bull. et Mem. Soc. med. d. hop. de Paris, 21-175, 1904.

[5]Oppenheimer and Fishberg: Arch. Int. Med., 34-631, 1924.

[6]H. C. Anderson: Jour. Exper. Med., May 1, 1924.

[7]Moschowitz: Jour. Am. Med. Assoc., October 17, 1922.

THE TREATMENT OF PELVIC INFLAMMATION IN WOMEN

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Hertzler summarized the treatment of gonorrheal parisalpingitis as follows: "The treatment of gonorrheal peritonitis is rest. Packs, hot or cold, sedatives, coal tars, bromides, codeine or morphine, may be needed the first few days to secure rest. After leucocytosis has been normal for a month or two the residue of the disease may be treated surgically if anything remains." He was writing about the acute peritoneal reaction, but when peritonitis is present, infection exists in the tissues below the tubes. Among recent papers on this subject, those of Curtis, Ward and Miller should be read. It is noteworthy that surgeons of such wide experience agree that the treatment of acute pelvic inflammation should be conservative. Curtis states that about 15 per cent of his cases come to surgery. This is in agreement with the conclusions of Holtz, who had 82 per cent cures in approximately 1,000 cases. Miller advises that we wait until the acute process cools down and then keep on waiting. Ward estimates that 75 per cent of acute pelvic infections are due to the gonococcus and not more than 10 per cent extend above the internal os if not treated locally. Polak says that gonorrheal infection is a self limited dis-

ease which goes on to recovery if drainage is maintained.

In considering the treatment of pelvic inflammation in women one must keep in mind that the causative infection, gonorrheal or other, is of various grades of severity. Individual reaction and bacterial virulence are factors of clinical importance. The treatment of acute cases is absolute rest, a nourishing diet, liquids, and symptomatic medication. Analgesics or opiates for pain, hypnotics to secure sleep, urinary sedatives, as hyocyamus and potassium acetate, neutral acriflavine, or acid sodium phosphate and hexamethylamin for vesical irritation, and suppositories for rectal tenesmus. Douches under low pressure may be used. No local treatment is advisable. Bladder irrigations and urethral applications are contra-indicated. Bimanual examinations should not be done in the acute stage. Gellhorn and others have recommended non-specific protein therapy. This is obtained by subcutaneous injections of cows-milk. Ampoules prepared from milk are in the market. The contents of one ampoule is injected into the gluteal region every other day for five or ten injections. If ampoules are not available five or ten cubic centimeters of raw cows milk boiled in a water bath for five minutes may be substituted. There is marked clinical improvement after the use of foreign protein. Anaphylaxis has not followed subcutaneous injections. In from one to three weeks the temperature returns to normal, the luecocyte count falls, exudates absorb, and the infection becomes localized. Clinical improvement is apparent. Gonorrheal infection tends to localize in four foci, the tubes, the cervix, Skene's ducts, and Bartholin's glands. It may be present in one or in all of them. Local treatment to eliminate infection from these foci is begun. Curtis has shown that the tubes are sterile two weeks after the onset of acute infection. Bartholin's glands if harboring infection should be excised. This can be done under local anesthesia. Skene's ducts must be destroyed either by actual cautery, or by slitting, or by caustic injections. The actual cautery is preferable. It is necessary to get to the bottom of the ducts for the reason that destroying the outer one-half seals the infection into the other half. A combination of slitting the ducts and cautery works well. The cervix may be treated surgically or by deep linear cautery. The object is to destroy the infected glands. Drainage is necessary to success and therefore the external os should be kept open by dilatation. The cautery causes an offensive discharge and the slough will separate in about one week. Occasionally bleeding accompanies the separaiton of the slough. The cauterized canal should not be curetted. Polak reports a death from septic emboli following this procedure. Healing of the canal follows in from three to six weeks. The cervix should be examined at intervals for one year, and kept open by dilatation. Patients have returned after cervical cautery with stenosis of the external os and cervicitis due to retained secretions. Hematometra has followed complete closure of the external os with retention of menstrual flow. Bimanual examinations with observation of the clinical reaction and of the temperature curve give valuable information at this time. If bimanual examinations are not followed by pelvic discomfort and temperature it may be assumed that the infection is well walled off. This treatment of acute cases, varied to meet individual conditions is based on two principles. First, the effort to localize the general infection. Second, the elimination of infected foci.

The treatment of chronic pelvic inflammation is the treatment of the sequelae of acute pelvic inflammation. The cervix, Skeene's ducts and Bartholin's glands have been discussed. Within the pelvis treatment concerns itself with the tubes, the ovaries, and their environment. The residue of an acute inflammation, if there be any residue after long continued conservative management, may be abscess in the cul-de-sac or in the broad ligaments, pyo-or hydrosalpinges, or tubo-ovarian abscess. The omentum and the adjacent intestinal coils form part of the limiting wall. Cul-de-sac abscesses are drained through the vagina, broad ligament accumulations through the vagina or extraperitoneally through the abdomen. A tubo-ovarian abscess may be drained through the vagina at times. Surgery within the pelvis

is limited to releasing adhesions and to removal of the tubes. The ovaries with their blood supply are preserved whenever possible.

Polak warns against multiplicity of operations. The additional appendectomy or removal of the gall bladder may add shock which the patient is not able to bear. He emphasizes the importance of adequate preoperative study and preparation. Quoting from his paper, "In order to safeguard these women, the routine procedure in our department for years has been to require the following minimum preoperative requisites, before all elective sections, namely:

1. A complete history and general physical examination.
2. A leucocyte count of between seven and ten thousand.
3. A polymorphonuclear percentage of from 65 to 80.
4. A hemoglobin of at least 60 per cent.
5. A sedimentation time of ninety minutes or more.
6. A normal urinalysis, and adequate kidney function.
7. A temperature of 98.6 F. for at least forty-eight hours before operation.
8. A systolic blood pressure between 110 and 150.
9. A negative Wassermann, and finally, that all elective preoperative have rest in bed in the hospital for a period of at least forty-eight hours, during which time the intake of fluids, water, milk, etc., must be at least two and one-half quarts per diem, while the usual sugar intake of the individual must be at least quadrupled."

This brief review is based on the reports of large clinics. However, in the clinic of the Colorado General Hospital these methods are followed and give gratifying results. The conservative management of acute pelvic inflammation reduces the number of operations. The long waiting period, if cure does not result, allows the generalized inflammation to localize in definite encapsulated masses. The pelvic tissues are firm, of good tone, and surgical technique is more nearly ideal. Post-operative complications are fewer and discomfort less.

REFERENCES

Hertzler, A. E. The Peritoneum, volume 2. 606-607.

Polak, J. O. and Tolefson, D. G. Am. Jour. Obs. and Gynec. 16, 600-609. Oct., 1928.

Ward, Geo. Gray. Penn. Med. Jour., 32, 63-69. Nov., 1928.

Miller, C. Jeff. Am. Jour. Obs. and Gynec., 16, 793-800. Dec., 1928.

Curtis, A. H. Am. Jour. Obs. and Gynec., 16, 531-535. Oct., 1928.

SPINAL ANAESTHESIA IN OBSTETRICAL AND GYNECOLOGICAL OPERATIONS

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The subject of spinal anaesthesia in gynecology and obstetrics, although embracing a comparatively small operative field, and requiring in nearly all ordinary cases the so-called low analgesia, nevertheless demands a thorough understanding and appreciation of the principles underlying this form of anaesthesia, especially should untoward symptoms develop during the course of the operation or post-operaitvely as a result of the spinal injection.

It is my privilege to present the present status of this increasingly important means of producing a safe spinal nerve block method for painless operative work on the female organs and parts.

Spinal anaesthesia is merely spinal "nerve block' by subarachnoid injection and has been termed variously, with possibly greater accuracy, spinal analgesia, lumbar anaesthesia and lumbar analgesia, but for the sake of clarity the usual term of spinal anaesthesia as used in the gynecologic and obstetric operative clinics at the University of Colorado Medical School, will be maintained in this article.

Corning first performed a lumbar puncture on a dog in 1884, and in 1899 Matas was the first to operate successfully in America under a spinal anaesthetic. Babcock, in 1904, began extensively to use this method and

since that time has performed over 20,000 operations under spinal nerve block.

The writer was first stimulated to an interest in spinal anaesthesia through the good offices and encouragement of the chief of the department of obstetrics and gynecology of the University of Colorado School of Medicine and was afforded, by means of this method of anaesthesia used in his private and clinical practice, a valued and prized opportunity to study spinal anaesthesia rich in practical experience.

To those who aspire to use spinal anaesthesia, and any physician who can do a lumbar puncture can readily perfect the technique required in this method, it is important and helpful to understand accurately the anatomy of the part involved in the injection area and the physiological reaction of the drugs thus introduced into the system. With a clear mental picture of what is going on in the mechanism of the vital functions of the patient following the injection, any untoward symptoms can be anticipated and forestalled.

The usual site of the puncture is between the second and third lumbar vertebrae, the interspace between the spinous processes of these vertebrae being sufficient to allow a needle passed horizontally in the median line to enter the subarachnoid space without impinging on any bony parts. In determining the location of the interspace above mentioned, an imaginary line can be drawn from crest to crest of each ileum, and where this crosses the spinal column, the next interspace above is the usual site for making the puncture, or as the base of the spinous process of the second lumbar vertebrae is comparatively thicker than the others, a double check is thus made.

The spinal needle passes consecutively through skin, sub-cutaneous tissue, supra spinous ligament, interspinous ligament, ligamentum subflavum, dura, arachnoid and finally into the subarachnoid space, a total distance of about five centimeters. After a few introductions the operator can tell by the feeling of resistance, when the subarachnoid space is entered and thus avoid puncturing the opposite wall of the canal. Blood vessels are numerous anteriorally and laterally, practically none on the posterior aspect of the cord which leaves a very obliging site for the puncture. Occasionally deviations from the normal will occur both in the bony and soft structures, but rarely is it impossible to enter the canal, owing to ankylosis of the spinal column, deviation of the column or fusion of the bony parts.

In the adult the spinal cord terminates opposite the first lumbar vertebrae, the motor roots lying in front and the sensory roots behind.

Section of the cord opposite the level of the first dorsal nerve produces a considerable drop in blood pressure in spite of any concomitant acceleration of the heart rate. The drop is therefore due to some change affecting the blood vessels and lowering the resistance to the flow of blood; in other words, relaxation of the vessel walls.

Section of the cord at the sixth dorsal nerve causes almost as marked a drop in blood pressure, but stimulation of the periphereal ends of the cut cord causes a universal vaso constriction with a rise of blood pressure.

Section of the crura cerebi on the brain stem at the upper border of the fourth ventricle does not produce a drop in blood pressure.

Destruction of a small portion of the medulla on either side of the mid-line in the neighborhood of the facial nucleus causes an immediate and maximal fall in blood pressure.

Stimulation of the anterior cervical or lower lumbar or sacral nerves has no influence on the blood pressure.

On the contrary, stimulation of any anterior root from the first dorsal to the third lumbar causes a rise in blood pressure. This same rise, however, can be produced by stimulation of the white rami communicantes from the anterior roots of the sympathetic system or by stimulation of the sympathetic nerve itself.

The logical conclusions to which one must adhere from the above facts is that the vessels are kept in a state of tonic contraction from impulses which originate in a chief vaso-motor center in the medulla, traveling

down the cord to escape by way of the first dorsal to the fourth lumbar nerves, then by way of the white rami communicantes with the sympathetic system, thence to the vessel walls.

There are accessory vaso-motor centers in the cord itself, as evidenced by the ability of the blood pressure to rise after severing the cord at the first dorsal nerve, but the entire destruction of the cord causes the living subject to bleed to death into its own blood vessels.

The nerve control of the vessels are motor or constrictor and inhibitory or dilator, and the vaso-motor nerves leave the cord by the anterior roots from the first dorsal to the fourth lumbar nerves inclusive, by way of the white rami sympathetic system.

The splanchnic nerve is the most important from the standpoint of the gynecologist. It receives the major portions of the spinal nerves from the lower seven dorsal and upper second and third lumbar roots and supplies all the abdominal viscera. Section of this nerve causes a tremendous fall in blood pressure.

Since spinal anaesthesia is essentially a conduction root anaesthesia, the impulses passing through the roots are cut off and fail to reach their destination, causing a relaxation of the abdominal vessels with a resultant fall in blood pressure.

A most important and indeed vital factor to remember, is that the brain demands always a rich supply of blood, and any relaxation of the vessels in the large splenchnic area will produce a cerebral and bulbar anaemia which may prove fatal. It is therefore important to remember that the only logical way in which to successfully combat the tendency to cerebral anaemia, following a spinal injection, is to allow gravity drainage to the heart so that the blood may be pumped to the brain with ease, and this can be accomplished only by the Trandelenburg position of the patient's body. Stimulation by means of drugs is ineffective if the above physiology is considered, because it does not avail to stimulate the heart when there is an insufficient blood supply to pump or to attempt to raise blood pressure by means of drugs when the impulses to produce constriction are blocked from reaching the blood vessels in question.

The cocaine series has a definite affinity between itself and nerve lipoids, and upon coming in contact with a live nerve a physiochemical solubility reaction ensues which is comparatively unstable, but the fixation is rapid and a sudden and complete fall in the conductivity of the nerve results. This takes place at the nerve roots only in the case of a spinal anaesthetic in which the various members of the cocaine series are used and the injection follows absolutely the law of diffusion if spinal fluid is used as the dilutant. The amount of diffusion depends upon the amount of spinal fluid withdrawn and the force with which it is reinjected and will always remain constant. This factor and the Trendelenburg position, immediately following the injection, are the two most important points to remember and to practice in spinal anaesthesia, as used in the technique hereinafter described. The height of the anaesthesia depends on the site of injection chosen, the amount of anaesthetic used, plus the quantity of the dilutant reinjected, plus the force used in reinjecting.

Caudal anaesthesia, sacral anaesthesia, Pitkin's method of controllable anaesthesia, although having definite fields and highly useful, will not be discussed in detail in this paper. A word of warning and caution, however, in regard to the use of the Pitkin method is advisable as the technique of this method, especially the procedure following the injection of spinocaine is vastly different from the method of choice used in the University of Colorado gynecologic clinic for operative work. Here, anaesthetists have adhered to the novocaine spinal fluid technique, using the Metz crystals in a sterile ampoule and diluting with the spinal fluid. Dosage of 120 mg. in 4 c.c. of spinal fluid has been the average for all cases weighing from 100 to 120 pounds, this dosage seemingly meets all the requirements for the ordinary gynecological and obstetrical operations. For purely perineal work it is admirable, the anaesthetic lasting a full hour and work can be started almost immediately, at least within

five minutes after the injection. In abdominal work the average time of waiting before making the skin incision, is about fifteen minutes.

The indications for the use of spinal anaesthesia have been advanced cardiac, pulmonary and renal cases; hypertension, aged, anaemic or cachetic patients and in Caesarian section invariably is the anaesthetic of choice regardless of the patient's condition. There is practically no contra-indication for the use of a spinal anaesthetic except in local infection at the site of injection and cerebellar neoplasms.

Blood pressure may be hyper or hypo, and it is generally conceded that hypo cases are poor risks, but with proper care and position, can be carried through very nicely and with safety.

The routine in the practice of the Medical School has been as follows:

A preliminary hypodermic injection of morphine grs. 1/6 and scopalamine grs. 1/100, three quarters of an hour before the spinal injection, and five minutes before ¾ grs. of ephredine sulphate, unless the blood pressure is over 120 mm. systolic. In case of Caesarian section, the initial morphine and scopalamine injection is omitted on account of the danger to the baby.

The patient is brought to the operating room with a cloth over the eyes and cotton in the ears. If any nervousness is manifested, absolute quiet is maintained and the patient assured that she will feel no pain of any sort except possibly just the first little hypo prick. She is then placed in a lying or sitting posture, in either case, with the back well arched so that the lumbar region is bowed. Absolute asepsis is followed, the anaesthetist scrubbing up as for an operation and wearing a sterile gown. The area from the twelfth dorsal vertebrae to the first sacral, and well out to the sides of the patient, is painted with iodine and a sterile towel placed around the hips. The site for puncture (interspace between second and third lumbar) is found, as previously indicated, and a preliminary wheal made in the skin over this spot, by injecting a 1 per cent novocaine solution. The same needle is then inserted directly into the subcutaneous tissue and as far as possible into the ligaments, injecting some of the novocaine solution so as to anaesthetize the area of puncture.

The apparatus necessary for the puncture is as follows:

Small hypo and 1 per cent novocaine solution for skin anaesthesia, 10 c. c. hypo and spinal needle, gauge 122. (Bleumel needle used in this clinic.)

Ampoule of Metz novocaine crystals, 120 mg.

Small file for breaking neck of ampoule.

Large caliber needle for drawing material up into 10 c. c. syringe after dilution.

Sterile hypo and a 1-1000 solution of adrenalin for use in case of need; also a sterile physiological salt solution to which adrenalin may be added for intravenous injection, should be in readiness; also a tank of oxygen.

The spinal needle thoroughly aseptic is then passed horizontally in the midline between the second and third lumbar spines and at approximately 5 cm., the needle will be felt to meet a little resistance of the dura, then slip into the subarachnoid space. On withdrawing the stylet of the needle, spinal fluid should escape drop by drop from the needle. Do not allow any more of the spinal fluid to escape than is necessary, but replace the stylet a short distance, and file the upper part of the ampoule of novocaine crystals, giving a sharp rap with the file just above the file mark which breaks the upper part of the ampoule off cleanly. Then allow about 4 c. c. of spinal fluid to drop into the ampoule containing the crystals, which quantity of fluid will almost fill the ampoule. Replace the stylet in the needle and mix the crystals and spinal fluid thoroughly, using the large caliber needle attached to the 10 c.c. syringe for this purpose. When thoroughly in solution, draw the contents up into the syringe, expell all air bubbles, detach the large caliber needle and connect the 10 c.c. syringe to the spinal needle. Before injecting the material, allow some of the spinal fluid to push the plunger out a little, proving the needle is still in the subarachnoid space. Then slowly inject about half of the contents of

the syringe and allow the spinal fluid to return for about 1 c.c., thus mixing to a certain degree the solution and spinal fluid in the vertebral canal. Finally inject the total contents of the syringe at a reasonably slow rate, being careful not to allow any air bubbles which might be present in the syringe, to be forced into the needle with the last portion of the fluid. Withdraw the spinal needle, put a sterile dressing over the puncture site, place the patient on her back and put her in an 18 degree Trendelenburg position immediately. Instruct the patient to take easy, regular deep breaths for the first four or five minutes, assure her everything is perfectly all right, place a wet cold cloth over the forehead and eyes, and possibly fan the patient a little if any faintness is apparent. Small pieces of cracked ice are very grateful to the patient and can be given throughout the operation. Do not ask if there is any pain felt, do not suggest pain, use as much psychology as possible to divert the patient's attention from the operation. It may be wise to ask, after five minutes or so, if the toes can be wiggled, and always note the exact time at which the injection was made. Danger symptoms generally appear within the first fifteen minutes and anaesthesia generally takes the same length of time to develop sufficiently and to enable proceeding with an abdominal section. The pulse rate should be taken frequently, as well as the blood pressure, but do not be alarmed if the blood pressure drops on the average of 30 to 40 mm. as long as the head is low and there are no signs of syncope or collapse.

Signs of impending danger and conditions to be combated may be divided into three groups: Immediate, intermediate and late symptoms.

The immediate include: meningeal reflex, visceral shock, hypersusceptibility, position shock, and intracranial pressure shock (loss of fluid) and are manifested by nausea and vomiting which come on almost immediately, sense of fainting, collapse, respiratory failure, excessive drop in blood pressure, slow pulse and pallor. The nausea and vomiting generally disappears in about five minutes and may be combatted by instructing the patient to take deep breaths or by giving some oxygen inhalations. This nausea is due to the sudden drop in pressure and cerebral anaemia or to a sudden change of position. Be very careful not to move the patient quickly or violently. The sense of fainting and collapse, thirst, air-hunger, cold sweats, slowing of pulse and respiration require oxygen, Trendelenburg position, and possibly an injection of 10 m. of adrenalin deep into the muscle, or in very severe cases intravenous salt solution with adrenalin until the pulse returns strong. Respiratory failure is due to the anaesthesia involving the roots of the cervical nerves leading to the diaphragm and loss of voice is an early sign of impending respiratory failure. Use artificial respiration if necessary in addition to treatment given for nausea and vomiting. Sudden respiratory failure is due to syncope and shock, dependent upon the lumbar puncture itself occuring in the status lympathaticus types. Blood pressure may drop to zero and no symptoms apparently manifest themselves if there is sufficient blood in the cerebral cortex and medullary centers and the Trendelenburg position is all that is necessary. Pallor is due to the relaxation of the vessels and cerebral anaemia. The pulse becomes slow when the vagus overacts, due to depression of the sympathetic. Adrenalin may be indicated here. All immediate symptoms are generally due to toxic action of the drug on the nerve centers.

The intermediate symptoms include meningitis, irritative and infectious headache, backache and stiff neck, and are due to effects of the material injected or leakage of spinal fluid. A small needle, delicate technique, asepsis, and as little trauma as possible will eliminate most of the intermediate symptoms and complications. The treatment for headache is to lower the head of the bed for twenty-four hours, eliminate excitement, force fluids and a hypo of surgical pituitrin every six hours. The Trendelenburg position should be maintained at least three hours after the operation, in all cases, and a flat position for the first twenty-four hours thereafter. Sudden or quick changes should be carefully avoided.

The late symptoms, such as neuritis, palsies, persistent headache and persistent nausea and vomiting, are usually due to faulty technique or low grade meningeal irritation or infection or trauma at the site of puncture, but fortunately are rare occurrences and should not occur with proper care.

Generally speaking, in the low anaesthesia, such as is needed in gynecologic and obstetric operations where there is no need for a high or extensive area of block, the train of symptoms described, which are to be watched for, are practically never seen, but if occurring, are very transient and need no treatment except the Trendelenburg position and reassurances. Spinal anaesthesia makes possible a preoperative and immediate postoperative intake of carbohydrates and fluids and presents a patient as a better risk, preventing many postoperative complications. There is a complete absence of surgical shock and a marked decrease in postoperative nausea and vomiting. There is much less tendency towards postoperative gastric dilation and adynamic ileus and mortality is practically nil. It is of great advantage in cases of hypertension, diabetes, nephritis, pulmonary tbc., influenza, pneumonia, eclampsia and in the aged and debilitated. There is less urinary retention and no tendency towards urinary suppression as in general anaesthesia.

A renewed and extended interest in spinal anaesthesia, as at present developed, will tend to advance and commend this ideal method of surgical anaesthesia in the future, especially in gynecological and obstetrical surgery.

The experience of the writer in some fifty operative cases, with three exceptions only, due to individual conditions, has been eminently satisfactory, both from the standpoint of surgeon and anaesthetist, as well as that of the patient, and it is to be hoped that the fear of this method of spinal anaesthesia will gradually be eliminated from the profession at large and more universally used as the anaesthetic of choice.

CONTRACEPTIVE METHODS AND THEIR INDICATIONS*

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The importance of birth control considered from its sanitary, medical, moral, social and economic aspects is coming to be more appreciated. It is time for open discussion of one of the most serious hygienic problems we have today. Leaving all considerations out except the purely medical aspect of the problem, it is time for the medical profession to take up the problem seriously and in a scientific way. No medical man can go through practice and not find it necessary to give contraceptive advice. It is not enough to state "Do not become pregnant," without answering the question "How?" This work of "How" has been so hampered by social, economic, legal and religious prejudices that it is only in the last few years that any progress has been made. The first birth control clinic in this country was started in St. Louis. An attempt by Margaret Sanger to operate a birth control clinic in Brooklyn was stopped. In 1921, the meeting of the American Birth Control League in New York was prevented by police. And yet progress was made, as four years later there was an international conference on birth control. The cause had been championed in the past by Thomas Jefferson and James Madison. It was advocated by Robert Dale Owen, ambassador to France. It had the sympathy of Ralph Waldo Emerson. In 1833 a practical treatise on birth control was published by Dr. Knowlton, which desseminated knowledge, especially in England. Sir James Barr took up the work for England as president of the British Medical Association, and Abraham Jacoby, at the same time, in the United States, used the subject as his presidential address before the American Medical Asso-

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ciation. In 1925, Dr. Pussey as president of the American Medical Association, did the same. England has a national birth rate commission and also has an institute of sex psychology in Edinburg. Germany has sex advice stations which send women entitled to the information, to qualified medical men. The same is true of Russia. Thus three countries have government agencies. England's clinic of birth control was started by Marie C. Stopes in 1920. The American and has a membership of 40,000. Chicago Birth Control League was started in 1921, Birth Control Clinic began in 1924.

The opposition to contraceptive information is social, economic, religious and medical. I do not intend to touch upon this, except to say that the medical grounds of opposition are for the medical profession to determine. Also that the religious opposition is really one of method. Their objection is placed against our artificial methods, which are claimed to be opposed to nature. Abstinence, which is a method of birth control, is their answer. Whether that method is not also opposed to nature is certainly an open question. Whether a biologic contraceptive as spermatoxin or vitamine E, if developed, would still be considered unnatural, I do not know.

A certain number of the states make contraceptive information legal. There are some states in which it is still illegal. Colorado has an old ambiguous law on which we are operating at the present time. An attempt to clarify the situation has so far been unsuccessful. If an interpretation of that old law would prevent the giving of contraceptive information, Colorado would have a queer status. We could do an abortion here with consultation and yet would be unable to give the information to prevent that abortion in the first place. In other words, having a patient with tuberculosis in whom a pregnancy is contra-indicated, we could not tell her how to prevent that pregnancy, but we could produce an abortion after she is once pregnant.

The medical profession can no longer evade responsibility. We have certain medical indications and they must be met by medical men in a scientific way. The subject must be looked at openly by the medical profession and scientific investigation must be resorted to in order to find the best, most harmless and most effective method. The general practitioners are as much involved in these investigations as any special group of medical men. The subject has even been shut out of text books. Most schools decline to discuss the subject in university medical courses, with few exceptions like Columbia and Johns Hopkins. The subject is tabooed from medical meetings except where, as already referred to, the president of the American Medical Association has used the subject as his presidential address. Even then, in spite of the recommendation of the section of obstetrics, gynecology and abdominal surgery in 1928 to the effect that the American Medical Association give their support to the alteration of existing laws where necessary in order that physicians may legally give contraceptive information in the regular course of practice, the trustees returned the recommendation back to the House of Delegates.

The medical indications for contraceptives are numerous and details are not necessary. Any pathological condition in the mother which, as a result of pregnancy, may become aggravated or may endanger her life, is an indication for contraceptive information. Contraceptive information is necessary in the following conditions: (1) Heart cases of certain types as in failing compensation. (2) Diabetes. (3) Kidney involvements. (4) Pelvic deformities (though sterilization after caesarian is common.) (5) Active syphilis. (6) Nervous and mental conditions (in the insanities, sterilization is preferable.) (7) Tuberculosis in active stages. (8) Nursing mother. (9) General debility, especially repeated pregnancies in rapid succession. (10) As a preventative of abortions. (11) After operations which make pregnancy dangerous and (12) Fear of pregnancy.

An ideal contraceptive must, first, be reliable, (2) physiological, (3) psychological, (4) simple to use and (5) may be added, in the control of the woman.

Methods

The most important part of this article concerns itself with methods of contraception, the percentages of successes and failures and the description of a simple, reliable method. Here the ludicrous aspect of the situation enters. It is not permissible to describe methods of contraception, even though they are a vital part of scientific medicine. It is criminal to send such information through the mails. That there should be such restrictions to the investigation of anything necessary to the well being of the patient is pathetic. The very information which the general practitioner needs in his work we cannot give him. He is giving information such as he knows, but finds it almost impossible to obtain facts and figures. In this day of "law enforcement" it would be well to see that laws that are almost impossible to keep are taken from the statute books. The real physician will do everything in his power to save the life of a tuberculous patient or one with a failing heart in whom pregnancy may kill. If giving her contraceptive information makes him a criminal, it is very likely he will become one. Morally and from a standpoint of medicine he is exercising his knowledge to the best interests of the patient and no law can prevent it. Why then should not physicians see to it that such detrimental laws are revoked. Therapeutic abortions are done and should not be necessary. The necessity is due to our laws.

Summary

(1) Contraception is a serious medical problem and should be investigated scientifically and this should be done by the medical profession.

(2) Existing laws hampering the knowledge of birth control should be changed.

(3) The medical indications for contraceptive methods are listed.

(4) The methods of contraception are not described DUE TO OUR LAWS.

(5) The results of the method in use at the present time shows a failure of 0.7 per cent.

PARALYSIS OF THE LARYNX

Diagnosis, Differential Diagnosis and Anatomy.

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In examining a larynx the movement of the vocal cords should always be carefully noted in inspiration, as well as, in phonation. We have in the larynx the adductor muscles which close the glottis, and the abductors which open it.

Paralysis is a complete loss of movement; paresis a partial loss of muscular power. In one case it is the abductors that are affected; in the other, the adductors. If there is a paresis of the adductors alone, the cause may be either muscular or functional; the lesion will never be in the nerve. If there is a paralysis of the abductors alone or in combination with the adductors, then it is an organic affection of the nerve. This is the rule of Semon-Rosenback. The corollary of this rule is—that any lesion affecting the nerve—the abductor fibers are first to be degenerated. The reason for this is not known.

In organic paralysis the patient cannot speak; in functional paralysis she will not speak—due to a psychological inhibition—an interruption of the flow of impulses through the nerve.

In the differential diagnosis of laryngeal hoarseness—the manner in which the patient attempts to speak is important. If the patient speaks without force or strain and gets no volume to her voice, the diagnosis is settled—it is functional.

When the patient forces himself to a rasping whisper—it is an organic paralysis. Hysterical paralysis is not a true paralysis, but treatment is required in many cases since prolonged paresis of the muscles results in a certain amount of atrophy. Paralysis of involuntary muscles usually has its

origin in a lesion of the medulla or the spinal cord, while the cause of central paralysis of voluntary motion is found in the cerebral cortex. In this class of cases, aphasia must be distinctly separated from aphonia. By aphasia is understood—a condition of partial or complete loss of the power of expression or of comprehension of the conventional signs of language, from no lesion of the peripheral organs or nerves, but from lesions of the cortical centers—and may be either sensory or motor.

Aphonia signifies an absence of power of speech, due to some peripheral lesion. Paralysis of the adductor muscles has been termed hysterical aphonia, as it is, so often, found associated with disorders peculiar to the female sex. It usually comes on suddenly, the aphonia being generally total, including, at times, the inability to whisper. Some cases, while being entirely unable to speak, may at the same time, be able to indulge in all other acts involving vocal resonance. Upon examination the cords are found to be widely separated—and do not approximate when patient is asked to sound her voice. Inspection usually reveals a pale mucosa in true cases of hysterical aphonia. The condition usually follows some fright or shock and, as a rule, there is a history of previous attacks.

There has been described a condition in children, of habitual paresis of vocal cords, engendered by auto imitation, but not necessarily hysterical. After a child has suffered from temporary paresis it begins unconsciously to imitate the condition, manifested as hoarseness, whispering voice, or inspiratory stridor, according to the muscles involved. This condition may persist into adult age.

A paralysis may be of a single muscle; of the adductors; of the abductors; or a combination of these, and either unilateral or bilateral. The involvement of a single muscle is rare except in some toxemic conditions, local inflammations, or in hysteria. An infiltration may affect the nerve twig or muscle itself; mechanically interfering with its motion. The muscles which have to do with movement of the vocal cords are supplied by the right and left vagus or pneumogastric nerves, and before discussing the paralysis of each of these muscles, it may be well to review the course and relations of these nerves and enumerate the chief causes of paralysis which have been known to affect their intracranial, cervical and thoracic portions.

The Pneumogastric Nerve

Its deep origin is from two neucli beneath the floor of the fourth ventricle; a ventral one, located in the prolongation of ventral horn, which is motor, and a dorsal one, lying in prolongation of gray matter at base of posterior horn, which is sensory.

Its superficial origin is from the side of the medulla oblongata by ten or fifteen filaments, which emerge through the groove between the lateral column and the restiforum body and below the glosso-pharyngeal nerve. It leaves the cranial cavity by way of the jugular or posterior laccrated formamen, through its middle compartment, with the glosso-pharyngeal and spinal accessory. With the spinal accessory it has a common sheath of dura mater, but each has its separate sheath of arachnoid. The chief central causes of paralysis are: Tabes, bulbar paralysis, multiple sclerosis, tumors and syphilis.

It is well to remember that syphilis may affect either the medulla, the abductor muscles, the peripheral nerve filaments of the recurrent nerves, or the nerve trunk.

After leaving cranial cavity the nerve runs downward between internal jugular vein and internal carotid artery, passing next between internal jugular vein and common carotid artery — lying behind and between them in the posterior compartment of their sheath. Tumors, traumatisms, aneurysms and other lesions at the base of the skull give rise to laryngeal paralysis by involving the nerve trunks and it is often difficult to differentiate these from bulbar paralysis as these conditions often involve the facial, glosso-pharyngeal, auditory, the spinal accessory, or other branches of the pneumogastric.

There are two ganglia on the pneumogastric; the ganglion of the root, a small

rounded swelling upon the nerve as it lies in the jugular foramen, and the ganglion of the trunk, a long, fusiform enlargement, situated upon the nerve about one-half of an inch below. At this point the hypo-glossal nerve winds around its outer side; below the ganglion the vagus receives fibers from the accessory portion of the spinal portion.

The superior laryngeal arises from the trunk ganglion, curving downward and forward behind the internal and external carotid arteries, dividing into the external and internal branches. Causes of paralysis are very often found within the neck as here we find the main trunk, and also the recurrent branch—which may suffer from pressure by an aneurysm of the external or internal carotid artery, an enlarged thyroid, lympathic gland or tumor affecting any of the neighboring tissues. As the superior laryngeal is the sensory nerve to the larynx, carrying also, motor fibers to the crico-thyroid, lesions above its origin will also cause an anaesthesia of larynx. The reason recurrent paralysis is more common on the left than on the right side is due to the difference in their anatomical distribution. On the right side the nerve hooks around the innominate artery, while on the left, around the aortic arch. There is, at least, two inches difference in these levels and, including the greater size of the aorta—there is fully five inches more of the left—to be exposed to aneurysms, growths, etc. The right laryngeal branch is given off as the nerve crosses the first portion of the right subclavian artery, ascending obliquely inward in front of the apex of the right pleural sac, and behind the root of the right common carotid artery, and the terminal portion of the inferior thyroid artery to reach the groove between the trachea and esophagus.

While in this groove it passes behind and internal to the right lateral lobe of the thyroid and leaves the groove to reach the intrinsic muscles of the larynx by passing behind the inferior cornu of the thyroid cartilage. The left recurrent laryngeal arises in front of the transverse portion of the arch of the aorta, and winds behind that portion of the arch, below and to the left side of the obliterated ductus arteriosis. It ascends behind the root of the left common carotid and continues upward similar to the right.

Both nerves communicate with the superior laryngeal of the same side, and with the sympathetic.

The Adductor Muscles

To simplify the study of the paralysis of the individual muscles, the vocal cords should be divided into two parts: the anterior or membranous, and the posterior or cartilagenous. The crico-thyroid muscles, which receive their motor impulses through the external laryngeal branch of the superior laryngeal nerve, are called external tensors of the cords, and act by depressing anterior portion of the thyroid cartilage.

The adductors supplied by the recurrent laryngeals are:

(1) The thyro-arytenoideus muscles: These are best divided into an internal and external portion. When the internal portion contracts, it becomes thicker and draws nearer the mid-line; the cord is straightened and tensed.

The external portion is to the outer side and below, and has a stronger action in bringing cords more together. Its inner fibers have the same action as the internal portion—and have their insertion on the vocal processes but the outer fibers are inserted on the muscular processes and have a rotary action. Their action being tensors of the cords, in paralysis, their mobility, as far as adduction and abduction are concerned, is little impaired. The cartilagenous part of the cord is not affected and, during phonation, all that is to be seen is a small elliptical space between the membranous cords if the internal portions alone are affected—which space is increased, if external portion is also involved.

The coarse vibrations of such cords—gives a characteristic voice—manifested by hoarseness or low pitched huskiness. As previously mentioned, paralysis of these may accompany various neuroses, and local congestions and excessive use of voice are frequent causes.

(2) The interarytenoidous: This is a single muscle, situated between the aryte-

noid cartilages. It consists of superficial oblique fibers and a transverse portion. The oblique fibers arise from the external angle of one arytenoid cartilage, and pass upward and outward to the summit of the opposite cartilage. The transverse portion is thicker, and connects the posterior concave surfaces of the arytenoid cartilages. In paralysis affecting only this muscle, the membranous parts of the cords may be absolutely approximated while the cartilagenous portions remain open. This muscle is seldom paralyzed alone, but, when it is, vocal resonance is almost entirely prevented and aphonia is usually complete.

(3) The crico-arytenoideus lateralis: This muscle arises from the upper border of the cricoid cartilage, in front of the crico-arytenoid articulation. It is inserted into the anterior and inferior aspects of the external angle of the arytenoid cartilage.

Its action is to pull forward the cartilage, rotating it inward, approximating the cords and closing the glottis; very much the same action as the external portion of the thyro-arytenoideus—and paralysis is rarely seen.

The Abductor Muscles

There is one abductor muscle for each cord; the cricoarytenoideus posticus. This muscle arises from the surface at the side of the posterior median ridge of the cricoid cartilage. It is inserted into the posterior portion of the muscular process of the arytenoid cartilage. Its upper fibers pass transversely outward; its middle fibers obliquely upward and outward, and its lower fibers, vertically upward. It is a direct antagonist of the lateralis.

It rotates the arytenoid cartilage, and opens the glottis, and its vertical fibers produce the gliding motion of the cartilage. Posticus paralysis may be either unilateral or bilateral. Unilateral paralysis is quite common, being most often found on the left side, for reasons previously stated—and injuries or disease of the recurrents are usually responsible.

However, the symptoms, whether due to involvement of trunk or branch, are very much alike. Among the causes of involvement of the right recurrent may be mentionad aneurysm of right subclavian artery, and pleuritic adhesions in region at apex of right lung.

In unilateral posticus paralysis the adductors on that side are also usually affected, and the vocal cord is found fixed in the cadaveric position; i. e., half-way between adduction and adduction. The unaffected cord may act normally during attempted phonation, or may encroach beyond the median line, its cartilage overlapping the other anteriorly or posteriorly.

During deep inspiration it is widely separated from opposite cord—and dyspnea is absent.

In some cases the epiglottis may seem to deviate to one side. In the beginning there may be an aphonia or hoarseness, which is less noticeable as the other cord compensates for the loss of motion on the other side.

Laryngeal paralysis may be the first, and remain for some time, the only indication of an aneurysm of the arch of the aorta. Bilateral posticus paralysis, which is also usually accompanied by an involvement of the adductors is, by far, the most dangerous form we have to contend with.

Although both cords remain permanently fixed in the cadaveric position, dyspnea may be marked in inspiration; the cords being pressed downward and closer together by the air pressure above them, through the suction produced below by the expansion of the chest.

During expiration, the air forced upward separates the cords. The continuous dyspnea to which some of these patients are subjected is very distressing, and coughing and expectorating may be most difficult. In bilateral paralysis the cause is usually some central lesion, chief of among which are syphilis, tabes, bulbar paralysis, multiple sclerosis and brain tumors.

Conditions in the neck and chest which may be responsible for unilateral or bilateral paralysis are, tumors, traumatisms at base, aneurysms, enlarged glands, scoliosis, inflammatory swellings, inflammation and adhesions about apex of lungs, mediastinal tumors, pericarditis, simple, luetic or toxic

neuritis, and malignant tumors of the esophagus.

On account of the location of the cricoarytenoidei postici outside and behind the larynx they are exposed to involvement in neighboring inflammatory processes, and to injury from foreign bodies, hot liquids, and corrosives that may be swallowed. A prolonged paralysis of one of these muscles is very suggestive of locomotor ataxia. In all cases of abductor paralysis it is essential to test the sensitiveness of the laryngeal mucosa and, having determined the location of trouble—either above or below the superior laryngeal branch, search for causes common to these regions.

Theoretical exceptions of a posticus paralysis existing without a nerve lesion are, when the muscle is destroyed by trichinosis or by cancer, without involving the nerve.

Traumatic destruction of, injury or insult to the nerve, during goiter operations, is probably the most common cause of recurrent paralysis.

MENINGOCOCCUS SEPTICEMIA

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The following case is presented because of the fulminating character of the generalized infection by the organism usually concerned with cerebrospinal fever. It is believed that the case demonstrates the virulence of this infection when disseminated through the body fluids, especially the blood.

The patient, F. H. E., aged 43, married and a railroad laborer by occupation, was born in Finland and has resided in Colorado twenty-two years, whence he came for reasons other than health.

The family history was negative, the mother having died at 76, of unknown cause, while the father died of blood poisoning at 50.

Of his antecedent life little was available as the anamnesis was supplied by his wife, to whom he has been married nine years, and during which no sickness had supervened.

Present History: He had been enjoying good health and worked all of the day March 8, 1929, but upon awakening on the morning of March 9th, he stated that he did not believe he would go to work as he did not feel well and that he had felt cold about midnight. Cascara was taken on this morning as a cathartic. He complained somewhat of headache during the afternoon and vomited, after having been given beaten egg and fruit juices. Stupor gradually supervened and toward evening respiration became rapid in rate. He is stated to have vomited four or five times.

Upon examination he was seen to be a muscular Finnish male, approximately 5 feet 10 inches in height and weighed about 165 to 170 pounds. He lay in bed with slight flushing of face, the trunk slightly flexed and the head slightly flexed on the chest. There was increased tone in the posterior neck muscles. He was completely unconscious and did not respond when called, although the eyes were opened slightly. No effort was made to comply with requests, but when irritated he moved all four extremities. On extending the leg on the previously flexed thigh there was tension of the ham strings and he roused with facial wincing, indicating the pain thus induced. There was no active spasm of the flexor tendons. His rectal temperature was 105°. Respiration was rapid, 45 to 50 in rate, somewhat shallow and both costal and diaphragmatic in type. Pulse was rapid, 120 in rate, marked diminution in volume and regular. The heart was markedly increased in the lateral dimension and the apex approximates the axillary line. Heart sounds were somewhat subdued but no frank murmurs were detected and the sounds were only audible at the base, being obliterated at the apex by a marked bronchial tubular breathing almost equally evident in the respiratory and expiratory phases. Percussion of the calvarium showed no difference on the two sides and the note was quite normal in pitch. No alteration in skeletal muscle tone was noted. Reflex responses were present and the right and left knee jerk both being diminished but equal. Ankle Clonus absent on either side. Tendo achilles were present, equal and equally diminished. Deep reflexes of the forearm, R. and L. slight. Supinator jerk, right and left slight. Superficial reflexes showed prompt extensor response in the plantar. Oppenheim, right and left extension. There was no evidence of hyperesthesia or increased sense perception in any form. Eyes: Muscle balance straight. There was no spontaneous nystagmus. Pupils: 3.0 mm., circular, promptly responsive to light and sustained. Optic fundi: R. was normal with the exception that there was slight venous injection. The nerve outline was well preserved. The left was the same but some tortuosity of the vessels was noted and a peripheral hemorrhagic extravasation in the choroid was seen in the upper quadrant.

He was removed to the Denver General Hospital two hours later and reported to have exhibited increased cervical rigidity with embarrassment in breathing and beginning cyanosis. Spinal fluid examination was stated to have revealed 4,800 polymorphonuclear cells and a gram negative diplococcus.

He was then transferred to the Colorado Psychopathic Hospital, where he was described as delirous with marked cyanosis and labored respiration. Kernig and Brudzinski signs were negative. Some petechial spots were noted over the chest and arms. The teeth were covered with sordes. The throat was inflamed. Harsh rales were described throughout the chest. Cisternal puncture was made, removing 40 cc. cloudy serum.

Patient died before examination could be completed. Examination of the fluid was reported as bloody with protein 160, sugar, 0. Wassermann reaction, negative. Colloidal gold, 000123400. A blood Wassermann was also taken which was returned negative.

Death was stated to have occurred from respiratory failure.

The clinical diagnosis was made of meningococcus septicemia with beginning meningitis, chronic endocarditis with cardiac hypertrophy.

A daughter of the patient was removed to the Psychopathic Hospital the same day and afterwards ran a typical clinical and serological course of meningitis. She responded to intensive serological treatment and was discharged from the hospital recovered and without residuals.

The following are the notes taken at the necropsy by Dr. Seecof about twelve hours after death:

The body was well developed and well nourished. On the skin all over the body were scattered large, irregular, purplish-black areas and innumerable large petechial and purpuric hemorrhages. The purplish-black areas were present chiefly on the face, neck and shoulders. They varied from 1 to 4 cm. in diameter, occasionally confluent, and were not elevated. The hemorrhagic foci were present both in the normal skin and within the purplish-black areas. They were sharply demarcated, irregular in outline, varied from 2 to 15 mm. in diameter and slightly elevated. There were large petechial and purpuric hemorrhages in the conjunctivae of the upper and lower eyelids on both sides. The pupils were equal, regular, centrally placed in mid dilatation. The mucous membrances of the mouth were cyanotic, the gums unclean.

There were no adhesions or fluid in the peritoneal cavity. The peritoneum was all over thin, smooth and glistening but through it, on both the visceral and parietal surfaces were seen innumerable petechial hemorrhages, similar to those on the skin. There were no purplish black areas.

Both pleural cavities were obliterated by dense fibrous adhesions. The pericardial sac occupied the region from the right costo-sternal junction to the left mid-axillary line and caused the left lung to be displaced posteriorly and medially. There were no adhesions or fluid in the peri cardial sac.

The heart weighed 400 grams. It was soft and flabby. In the epicardium and endocardium were innumerable hemorrhages similar to those on the peritoneum. The valves were normal.

The lungs were moderately congested; the bronchi were intensely injected. The mucous membrane of the pelves of both kidneys, ureters and urinary bladder contained innumerable petechial hemorrhages. Similar hemorrhages were present throughout the gastro-intestinal tract, from the stomach to the anus. In the sigmoid and rectum there were in addition, large, purplish-black areas similar to those described on the skin. The suprarenals presented a striking picture. Both were similar. Each weighed 13 grms. and was larger and firmer than normal. Through the thin capsule the organ appeared purplish-black. On section the organ appeared to be replaced by a smooth, purplish-black tissue containing a few pin head sized yellowish-white areas (of normal cortex). There was no differentiation between cortex and medulla. The vessels were normal. The other organs were essentially normal. During removal of the brain and cord no abnormalities of calvarium and dura were noted. The brain weighed 1,450 grams. The vessels over the vertex were moderately congested. The pia was all over thin, smooth and glistening, but along the larger veins were linear grayish-white streaks of exudate. There were no abnormalities at the base. The vessels were normal. No abnormalities of ventricles. The pituitary appeared normal. Pineal was somewhat irregular in outline and firmer than average. Cord: Except for marked congestion of the vessels no abnormalities.

Microscopic examination of the tissues revealed small foci of free hemorrhage in practically all the organs; with almost complete hemorrhagic destruction of the suprarenals. In the pia of the brain and cord there was an exudate consisting chiefly of lymphocytes and mononuclear cells with relatively few polymorphonuclear cells.

THE ONSET OF MULTIPLE SCLEROSIS

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Multiple sclerosis, like syphilis, often presents itself to the physician in disguise, and it is only when the disguise is penetrated that the diagnosis stands revealed. It is rare indeed that the disease displays the classical triad of symptoms—nystagmus, intention tremor, and scanning speech. These symptoms, it is true, may eventually be present, but they have much the same relation to multiple sclerosis that brain hemorrhage has to arteriosclerosis, that is to say, they are more or less terminal features. The advanced symptoms of multiple sclerosis have received over-emphasis, and the explanation is doubtless found in the fact that diagnosis from initial symptoms is difficult and often in a large measure provisional.

One of the main difficulties of early diagnosis is the absence of uniform symptomatology. Symptoms are produced by multiple patches of sclerosis in the brain and spinal cord, and the symptoms vary with the particular part of the central nervous system that happens to be involved. If the optic chiasm is affected, the symptoms are visual; if the sacral spinal cord is involved, the bladder functions are disturbed. Theoretically, there are innumerable manifestations, and practically the situation is almost as complicated.

Perhaps the most important thing to observe is that the different symptoms are caused by *multiple* lesions. One might imagine that the brain and cord had been peppered with buckshot. The symptoms then arise from scattered lesions and not from a major lesion, for instance, from a lesion that one might fancifully compare to a bullet wound. The victim presents an ocular palsy, a facial paralysis, and weakness of a leg. These different symptoms could not be caused by a single lesion, and it is evident, without brushing up on one's nervous anatomy, that buckshot did it. Buckshot symptoms, then, are characteristic of multiple sclerosis.

Another outstanding feature of multiple sclerosis is the transient character of early symptoms. An eye may be nearly blind and a leg nearly paralyzed, yet in a few weeks such symptoms will often disappear. This evanescence is part of the disguise in which the disease presents itself, and naturally the condition is often mistaken for hysteria. As an additional feature of the disguise we often find an emotional instability, which further deceives the observer.

In summary, we can say of multiple sclerosis that the typical history presents a group of symptoms that imply scattering of lesions in the central nervous system, and that these symptoms often disappear and reappear, and that in reappearing they may bring new symptoms with them. A large proportion of cases present cranial nerve disturbances associated with various disabilities of the arms and legs. The commonest cranial nerve symptom is partial blindness; the common disabilities of the extremities are numbness and weakness. Other symptoms may be added to the group, such as bladder disturbances, girdle sensations, etc. The more diverse the symptoms, the more certain we can be that the underlying lesions are of a multiple character, and the more sure in consequence is the diagnosis.

In the typical history we find that the patient has had previous disabilities of a neurological kind. With their first appearance the symptoms were perhaps regarded as trivial, and in any event they were not viewed with alarm when remission occurred and restored the patient to seeming health, But recurrence of the disabilities gives the symptoms a different significance, and the intelligent patient often associates his various attacks and suspects that there may be logic and perhaps disaster in the situation.

Reviewing a few cases of multiple sclerosis, we see that the history suggests the diagnosis. The matter of physical examination is therefore omitted for the present.

Case No. 1. Elfrieda B., 22, has had failing vision in the right eye for the past eight weeks. Vision is now so impaired that she cannot read newspaper print. Sometimes the eyeballs jump up and down. She had trouble with the left eye five years ago, and it was several months before she could see clearly.

Three and a half years ago most of the left side of the body got numb and remained so for about three weeks. When the numbness started to subside, it disappeared altogether in two days.

Four months ago she began to lose control of the legs and got quite unsteady. At the same time the left leg and the left side of the trunk got numb. Shortly the numbness extended to the right side of the body also. Most of this numbness and unsteadiness had disappeared when the trouble with the right eye began.

For a number of weeks she has had tremor of the hands. This is marked in the mornings, especially at the breakfast table.

These various symptoms are sufficient without physical examination to identify the case as one of multiple sclerosis.

Case No. 2. Lula A., 36, had trouble with the bladder three weeks ago and had to be catheterized several times. She has a feeling as of a tight rubber band around the lower part of the abdomen and across the hips. There is a similar sensation above the left knee.

For the past six weeks she has had a numb or sleepy feeling in the fingers, and she cannot feel small objects in her hands. Sometimes her hands tremble when she picks things up.

Eight or nine months ago the right eye seemed "filmy" for a few weeks, but the trouble disappeared when she gave up her work as bookkeeper and had two infected teeth extracted.

Two years ago there seemed to be a film before the left eye. At first she thought there was a hair in front of the eye and kept trying to brush it away. Finally she realized that there was something wrong with the eye itself. Her oculist told her that three-fourths of the vision was "obstructed."

In addition to all these difficulties she has had a good deal of trouble in walking. About two years ago she began to have a weak sensation in the knees, and after going upstairs she could scarcely stand up. Four months ago the toes got numb and in about a month this numbness extended to the hips. She has gradually got quite lame. However, both the lameness and the numbness are variable.

Of late the patient has had dizzy spells, and she finds herself getting quite emotional.

In this case it is again seen that the history may furnish the diagnosis. The scattering of lesions is evident, and there is remission of symptoms. The history by itself is practically conclusive.

Case No. 3. Alice L., 35, had dizziness, nausea, and vomiting. When these symptoms had persisted for several days she found that she could not close the left eye. In another twenty-four hours the entire left side of the face was paralyzed, and the eyes became crossed. Early during this illness the left hand was numb, so that she asked to have it rubbed with alcohol.

Two years previously she had had "retrobulbar neuritis" and was blind for three or four weeks.

The history is strongly suggestive of multiple sclerosis, and the subsequent course of the disease made the diagnosis certain. The patient had a complete remission of symptoms, except that she remained physically weak. At the end of twelve months she developed unsteadiness of gait. Six months later she had an attack of paresthesia affecting the left side of the body. She is now scarcely able to walk. She has nystagmus and optic atrophy.

Case No. 4. Harry M., 43, has had trouble in talking and swallowing for the past six days. During this time the left hand has been numb. Two days ago the right arm became numb and dead, so that he could not lift it from the bedclothes. He is emotional and suicidal.

He had a group of neurological symptoms three months ago. There was double vision and jerking of the right eyeball. He was unable to walk and he lost the sense of feeling in his hands. At times he would jerk all over. His speech was slow and somewhat labored. During this illness he thought that his symptoms were due to homatropine poisoning, for they came on shortly after he had his eyes examined. The entire group of symptoms cleared up, and he was back at work in a month.

Careful inquiry into the clinical history elicits the fact that he had transient attacks of right and left facial paralysis as early as a year ago. These attacks were apparently the initial symptoms of his multiple sclerosis.

Case No. 5. Mrs. W. H. M., 34 years old, has had numbness of the right arm and left leg for nine days. At the present time the trunk and the left arm are numb also. In these different portions of the body the nerves feel as though they were too near the surface. There is a pain like toothache in the right arm, and a feeling of heaviness in the left arm. The grasp is weak and she is unsteady on her feet.

Sixteen years ago she had a similar illness. She was nervous and restless and was practically helpless for two months. When walking, she dragged her left foot. She could not dress herself, and could not cut up her food.

Five and a half years ago, while pregnant, she had partial blindness in the upper half of the visual field of the left eye. This disturbance of vision was "like a curtain." She had double vision, and she was dizzy. These various symptoms lasted for three months.

Case No. 6. Gordon F., 25, had trouble with the right arm six years ago. He was driving a truck and at times his right hand and arm would be numb for a day or two. He attributed this to the vibration of the steering wheel. Later he became unsteady on his feet and would catch his right foot when the ground was rough. His eyesight got bad—a symptom he attributed to "Nicotol," which he was taking for the cigarette habit. The numbness of the right arm became more pronounced and he was almost paralyzed on the right side. Soon the left side became paralyzed and he was quite helpless. At the same time he became nearly blind in both eyes.

Then his sight came back, also the use of the right side of the body. Gradually the left side got stronger, but now the right side became weak, and thus for a number of times the paralytic symptoms affected the two sides of the body alternately. Sometimes there was overlapping, so that both sides of the body were affected simultaneously.

These case histories present the symptoms of multiple sclerosis quite typically. The symptoms are diverse, so that they can come only from scattered lesions in the central nervous system. There is remission of symptoms; then relapse, often with additional symptoms. Paradoxically, it is this confusion that so clearly points the diagnosis. There is hardly another disease in which such disorder occurs.

Neurosyphilis sometimes bears resemblance to multiple sclerosis, but it is easily differentiated by the positive Wassermann test on the blood or spinal fluid.

Encephalitis may be perplexing, but this is usually a febrile disease, in a bedfast patient, who is probably subject to stupor, and who rarely shows remissions.

As a rule the differential diagnosis presents little difficulty if the history is taken with sufficient thoroughness to elicit the facts of the patient's illness. We may reasonably expect the facts to shape themselves into a typical clinical history, if we bring out the essential things and do not obscure the record with too much irrelevant material.

When we encounter difficulty it will usually be with the initial group of symptoms, for at this stage there is no history of remissions and relapses, and we have merely the evidence of scattered neurological lesions.

Real difficulty may be encountered in those few cases in which the onset of the disease is marked by a single symptom, rather than by a group of symptoms. A chauffeur complains, for instance, that his left leg is numb and weak, so that he can hardly work his clutch pedal. In a week these symptoms disappear, and he is as well as ever. Naturally we suspect multiple sclerosis, though as yet we are uncertain. If he is seen six months later with a transient visual disturbance, we associate the two disabilities, and it may be possible to establish the diagnosis.

It is probable, though, that he will see another physician for his ocular symptoms, and unless a careful history is taken, the significance of his previous and present symptoms may be overlooked.

In closing, a few words should be said about the physical examination and laboratory findings in multiple sclerosis. Perhaps the most valuable physical sign is the absence of the abdominal reflexes, for this condition is usually found even in the early course of the disease. Often there is a little pallor of the temporal halves of the optic discs. Sometimes a little tremor is present; this can be demonstrated by having the patient pour water from one test tube to another. Often there is nystagmus, the eyeballs jerking a little when the patient looks to the extreme right or left. A weak leg is often found to be spastic; the knee jerk and ankle jerk are exaggerated; ankle clonus and a Babinski reflex may be present. Numbness and tingling of extremities are not necessarily accompanied by anesthesia. Scanning speech is seldom found in early cases; some slowing of speech may be present. On the whole it may be said that the physical findings do not conform to any textbook outline; and, like the symptoms of the disease, they may vary from time to time in the same patient.

The laboratory tests are usually negative. Occasionally the spinal fluid gives an abnormal colloidal curve, the curve being of the paretic or luetic type. The cells in the spinal fluid may be a little increased, a count as high as 20 at time being obtained. More commonly the spinal fluid is negative throughout.

Summary

The diagnosis of multiple sclerosis can usually be established by a careful clinical history. The history clearly indicates that there are multiple or scattered lesions in the central nervous system. Among a great variety of symptoms, visual disturbances are common, likewise weakness and numbness of one or more extremities. Remissions and relapses are characteristic of the disease. Often relapses bring new combinations of symptoms.

In the physical examination it is rare to encounter the classical triad of symptoms—nystagmus, intention tremor, and scanning speech.

The spinal fluid may show an abnormal colloidal gold curve and a slight increase in cells.

EPILEPSY

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Epilepsy is one of the oldest known diseases. Julius Caesar was an epileptic and Napoleon is often said to have been, but there is very little evidence that he really was. The direct cause of epilepsy seems to be a general irritability of the cerebral cortex. Rarely this irritability accompanies or follows organic damage to the brain, such as concussion, hydrocephalus or rickets, but in the great majority of cases no such cause can be found.

Normally the different cortical centers liberate energy only in response to the proper incoming stimuli, but in epilepsy the centers are so irritable that they discharge their energy spontaneously and violently, and the disturbance set up by the discharge of one center is sufficient to set off adjacent centers. In the usual type of epilepsy (grand mal), this sudden liberation of nervous energy gives rise to generalized clonic and tonic convulsions accompanied by loss of consciousness. Sometimes the loss of consciousness is only a momentary blank spell in which the patient does not fall and there is no convulsion. This type (petit mal) is less common than grand mal but is much more difficult to control because the spells occur much more often. The patients often have several a day and in severe cases one comes every few minutes.

In another form, sometimes encountered by itself and sometimes along with attacks of grand mal or (petit mal) the disturbance takes place in the higher psychic centers. In these spells the patient performs

peculiar actions or says peculiar things which he does not remember afterward. Commonly patients undress themselves or misplace things where they can't be found.

Great care must be taken to distinguish between epilepsy and Jacksonian epilepsy. The one is due to a generalized **irritability** of the cerebral cortex and the other is due to a localized **irritation** of the cortex. The two conditions have a very different clinical significance. In Jacksonian epilepsy the attacks are caused by a definite organic lesion which must be diagnosed and treated. The usual causes of local irritation are brain tumor, luetic endarteritis, arterio sclerosis, tumors of the meninges or skull and spicules of bone from an old fracture.

I have one case in which there has been an old hemorrhage giving rise to greatest weakness in the right hand. He has an occasional attack of unilateral convulsion in which consciousness is not lost and in which the movements begin in the right hand. This indicates that the clot underwent organization instead of absorption and is now giving rise to some irritation. It also indicates that the hemorrhage was cortical rather than capsular. It is interesting to note that the convulsions begin in the part that was most affected by the original hemorrhage.

Clinically the two are distinguished by the **local** beginning of the convulsion in Jacksonian attacks, usually the attack begins in one limb and gradually spreads to adjacent parts. Consciousness may or may not be lost, but if it is, it is lost late in the attack, while in epilepsy it is lost at the very beginning. It is important to note the exact motion with which a Jacksonian attack begins because it is highly probable that the lesion is near the corresponding cortical center.

Sensory attacks may occur which are analogous to the motor attacks of Jacksonian epilepsy, but they are of less diagnostic value. They may take the form of visual hallucinations or olfactory hallucinations or any other hallucinations. The treatment of this condition obviously depends on the cause.

In the treatment of true epilepsy everything has been tried from removal of the colon to the latest dietetic treatment, but at present there are only two ways of controling the attacks. One is by the continued administration of a bromide and the other is by the continued administration of luminal. Luminal is much better. The ordinary text book dosage (1½ gr. a day) is usually too small to be effective. It is well to begin at about this amount in a single dose and increase it rapidly to at least 2½ gr. a day, but if this is not enough it can be increased cautiously to 5 or 6 grains. At first there may be a little tendency toward drowsiness and ataxia, but this soon wears off. It is best given in a capsule combined with about 1/30 gr. of strychnia. In the first place the dose is more easily regulated in a capsule and in the second place the strychnia tends to counteract the undesirable effects of the luminal. When the dosage has been properly regulated, the patient can be given a prescription that he can have filled over and over again, but he should report occasionally just to keep in touch with the physician.

In the majority of cases of grand mal and often in petit mal the attacks can be stopped entirely. Improvement is apparent in the patient's whole condition. He becomes happier and brighter. If mental symptoms have been present, they usually disappear, but the luminal must be kept up. It must not be omitted even for one dose.

The diet should be liberal. It is essential that the patient have three good meals a day. The main thing is to be sure that the diet is sufficient to supply all the vitamins and all the food elements in adequate quantities. There is, however, one class of foods which tend to bring on the attacks and are therefore to be avoided. This class comprises the intestinal irritants, such as nuts and bran. Meat is not only harmless but is a very valuable food. Man is naturally more carnivorous than herbivorous.

"Council Passed"

Notification is being sent to the medical profession that the well-known and deservedly popular Haley's M-O, Magnesia Oil has been accepted for N. N. R. of the American Medical Association. Henceforth the product will be known as Magnesia-Mineral Oil (25) Haley.

A RESUME OF THE CASES OF EPIDEMIC CEREBROSPINAL MENINGITIS TREATED AT THE COLORADO UNIVERSITY HOSPITALS DURING THE PAST YEAR

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An unusually virulent type of epidemic cerebrospinal meningitis has prevailed in and about Denver during the past several months. The disease has been prevalent in this region for the past two years, but has never become epidemic in character. Since December, 1928, a majority of the cases hospitalized have been treated at the Colorado University Hospitals.

Only four cases of epidemic meningitis had been admitted to these hospitals during the twelve months previous to December, 1928. Of these four cases, three had been typical clinical types of the disease, and the microorganisms of cerebrospinal meningitis had been found in the spinal fluid. All the cases died in spite of specific treatment.

The fourth case came in with an admission diagnosis of lethargic encephalitis, and a brief review of this case is of interest:

The patient, a white male aged 40, was admitted in a semi-delirious state. He complained of pain in the head, and along the vertebral column. There was some stiffness of the neck muscles, Kernig's sign was negative, temperature 100.6. A lumbar puncture was done and a clear, lemon-yellow fluid was obtained. The cell count was 151 to the cubic millimeter, with those of the lymphocytic series predominating. No organisms of any kind were noted, and a culture of the fluid was sterile. The patient was given convalescent serum from a case of lethargic encephalitis, but did not improve.

The mental state became more confused. The neck muscles were rigid, and a positive Kernig's sign developed. At this time epidemic meningitis was considered, and the second lumbar puncture was done. A clear fluid containing 68 cells was obtained. Antimeningococcic serum was given, but the patient did not respond, and died five days after admission. At autopsy the base of the brain was covered with pus which showed numerous gram negative intracellular diplococci, typical of the meningococcus. A culture was not made.

Nine cases of epidemic meningitis were admitted to the University Hospitals in December, 1928. All showed the typical clinical symptoms of epidemic meningitis, and were given specific serum therapy. The cases showed a wide variation in age. The oldest was 53 years and the youngest 3 years of age. Of the nine cases three recovered. All had been sick from two to ten days before their admission to the hospital. In all but two of the cases gram negative intracellular diplococci were found in the spinal fluid. The cell counts of the spinal fluids in every instance were very high, ranging from 2,300 to 65,000 per cubic millimeter.

The fact that so many of these cases did not respond to anti-meningococcic serum, raised the question as to the possibility of a type of meningococcus being the causative agent, which was not included in the antiserum used. It was then undertaken to grow the organisms from the spinal fluid, but this was not successful in any of the cases admitted during December.

Nine cases were admitted during January, and only three recovered. The age incidence was from eleven months to twenty-three years. Six of the nine cases presented the typical symptoms of epidemic meningitis.

Three of the cases can be definitely classed as septicemia due to the meningococcus.

The first case, a boy 3 years old, died five minutes after admission to the hospital. His sister had died the day previous, following a peculiar illness lasting about twelve hours. She had felt, "out of sorts," on arising in the morning, and then laid down about noon and did not eat any dinner. She was somewhat nauseated, but did not vomit. Early in the afternoon she felt feverish and was put to bed. She became quite listless and rather hard to arouse. A doctor was called later in the afternoon, but she died before he arrived. On examination the body was found to be covered with large hemorrhagic blotches. An autopsy was done, but no definite diagnosis could be made. The boy, aged 3, became ill that same evening and apparently acted much the same as the little girl. A doctor was called the next day, and the child was brought to the hos-

pital about 3 p. m., where he died a few minutes later. His body also showed the peculiar purpuric spots noted on the girl, the day before. An autopsy revealed nothing of diagnostic value. A post-mortem blood culture was positive after several days for a gram negative diplococcus.

The same evening, a girl aged 8, who was a sister to the two previous cases, was admitted to the hospital. She felt well except for some nausea and vomiting, which was not at all marked. Physical examination was entirely negative, except for a temperature of 104. She was perfectly rational, and denied any pain. About 3 a. m. the next morning she began to develop small petechial spots over her body. The spots rapidly enlarged to hemorrhagic blotches. She still denied any pain, and had a clear sensorium. A blood culture was taken, and a blood count was made about 9:40 a. m. This count showed, Haemoglobin (Dare), 110 per cent; red cells, 3,880,000; white cells, 57,000; polymorphonuclear neutrophiles, 75 per cent; lymphocytes, 21 per cent; eosinophiles, 3 per cent; basophiles, 1 per cent. In an examination of the blood smears a few intracellular bodies suggestive of diplococci were found. A blood smear was stained by Gram's method, several more of these bodies were found, and quite definitely identified as Gram negative intracellular diplococci. The patient died at 10:20 a. m. The autopsy, as in the two previous cases, was of no diagnostic aid. The blood culture obtained ante mortem was positive several days later for a Gram negative diplococcus. Unfortunately both this culture, and the one obtained from the post-mortem blood of the brother, were lost before agglutination tests could be made. Cultures of both were typical of the meningococcus. The spinal fluids, of the three cases, were clear when examined post-mortem.

The fourth child of the family, a boy aged 4, was brought to the hospital the morning of the third child's death. He had a slight fever, was given blood from his mother, and received anti-meningococcic serum intramuscularly. His temperature returned to normal, and nothing further developed.

Two days after the death of the third child, a boy 17 years old, who was an uncle of these children, and lived with them, came into the hospital with a clinical picture of meningitis. A lumbar puncture was done, and a turbid fluid containing 11,000 cells was obtained, in which a very occasional Gram negative intracellular diplococcus was found. Intensive treatment with specific serum was instituted by three routes; i. e., intraspinal, intravenous and intramuscular. He gradually improved for a time, and then became worse. Serum from different sources was tried, he again improved, and finally made a complete recovery. In all, he received 805 c. c. of polyvalent anti-meningococcic serum.

One other case is also worthy of mention. A girl, aged 16, was admitted to the hospital complaining of chills, severe headache, and pain in the muscles of the neck. Her temperature on admission was 103, and the body was covered with hemorrhagic blotches. She had some neck rigidity, and a positive Kernig's sign. A clear spinal fluid contained 28 cells per cubic millimeter. A blood count showed, Haemoglobin (Dare), 80 per cent; red cells, 4,850,000; white cells, 30,000; polymorphonuclear neutrophiles, 89 per cent; lymphocytes, 11 per cent. She was given 15 c. c. of anti-meningococcic serum intraspinally, and 15 c. c. intramuscularly. Death ensued twenty hours after admission. Autopsy showed a cloudy ventricular fluid, and pus about the base of the brain.

The ante mortem blood culture was sterile, but a culture made from the ventricular fluid, post-mortem, was positive after several days for a Gram negative diplococcus, which proved to be a type III meningococcus by agglutination.

Cultures of Gram negative diplococci were obtained from the ante mortem spinal fluid of three other cases. Two were from fatal cases, one of which proved to be a type III meningococcus on agglutination, and the other a type I. The case which recovered was also a type III.

Success in culturing the organisms in these cases was dependent upon several factors. First, the spinal fluid was allowed to drop directly from the spinal needle upon the warmed culture media. A media of glucose agar fortified with ascitic fluid was used. In two instances the cases had not received treatment prior to the time the cultures were made. The third case had had one injection of specific serum, and although no micro-organisms could be found in the direct smear, a scant growth was present in the culture on the third day, which flourished well after several transplants.

Of the five cases admitted during February, two died. All five were typical cases, and the cell counts of the spinal fluids ranged from 3,000 to 17,850 per cubic millimeter. In all but one Gram negative intracellular diplococci were found in direct smears of the spinal fluids. Two of the cases showed widely distributed purpuric spots on the skin. The age incidence was from 4 to 36 years. All received specific serum therapy.

Fourteen cases were admitted during March with a death rate of 50 per cent. They were typical clinically, and had spinal fluid cell counts varying from 2,860 to 31,000. In all but two, Gram negative intracellular diplococci were found in the spinal fluid. The age incidence was from 7 months to 54 years. Cultures were obtained from five cases during this month, and three of them were typed. All were type III meningococcus.

The treatment of the cases has varied. In December, and the first half of January, the average dose of serum for a child under 10 years was 10 c. c. of polyvalent anti-meningococcic serum intraspinally, and 10 c. c. intramuscularly, twice daily. This was

accompanied by spinal drainage, and the usual supportive measures. Adults received about 15 c. c., b. i. d., by each of three routes; i. c., intraspinal, intramuscular and intravenous.

Due to the high death rate this was thought inadequate, and the dosage was increased. Children were given an average dose of 15 c. c. of the polyvalent serum three times daily, both intramuscularly and intraspinally. Adults received 15 to 20 c. c. of the serum by intravenous, intraspinal and intramuscular routes, three times a day.

It was found that more rapid improvement occurred if serum from different sources was used. Evidently a few organisms were able to multiply in the presence of antibodies contained in one serum, but could be destroyed by the antibodies present in serum from a different source. No single biological product was found superior to the others.

TABLE I

Month to Month Mortality

Month—	Cases	Deaths	Recoveries	Fatalities Percent
Prior to December, 1928	4	4	0	100%
December, 1928	9	6	3	66 2/3%
January, 1929	9	6	3	66 2/3%
February, 1929	5	2	3	40%
March, 1929	14	7	7	50%

An examination of the above table shows that the percentage of deaths has decreased in the last two months. This may be due in part to a decreased virulence of the organism, but it is reasonable to suppose that the institution of the more intensive form of treatment also played a part.

TABLE II

Cases According to Age

Age—	Deaths	Recoveries	Cell Count Fatal	Cell Count Recoveries
Under 1 yr.	2	1	5,117	3,435
1- 5 yrs.	9	7	21,798	20,020
5-10 yrs.	4	2	17,850	13,500
10-20 yrs.	1	4	19,386	14,750
20-30 yrs.	2	2	38,950	4,715
30-55 yrs.	5	1	1,274	3,040
TOTAL	23	17	Avg. 17,680	13,690

Table II shows no definite relationship between age and the death rate. It also shows that there is no particular significance between the cell counts and death rate.

Although the number of cases is not large, a few interesting conclusions may be drawn:

1. Epidemic cerebrospinal meningitis of an unusually virulent nature exists in and about Denver. The organisms recovered by culture are typical morphologically of the meningococcus, and are chiefly type III.

2. Cases of septicemia due to the meningococcus do occur, and death may ensue without any involvement whatever of the meninges. In at least one case the true nature of the condition was first suspected by identification of the organisms on a direct blood smear. This indicates a very heavy infection.

3. Unusually large doses of serum, frequently repeated, and given by two or more routes are necessary to effect a cure. It is often necessary after starting treatment with the serum of one biological firm to change over to the serum of a different company.

4. Very few sequelae have resulted in the cases recovering. Two cases of deafness and one of deaf mutism occurred. All three showed subsequent improvement after discharge.

Mental Factors in Accident Prevention

The value of attention to the human factor in the prevention of accidents is interestingly brought out in a study made by the personnel research federation of surface car operation in Boston. By the investigation of individual differences among motormen and the application of the knowledge gained from such study in the formulation of rules and conduct, the number of accidents during 1928 was found to be 26.6 per cent below the previous five years average.

About one in ten of the men having records of frequent accidents were found to be "accident-prone" because of physical or mental handicaps or specific faults of operation of which they were unaware. As an example of the importance of the personality factor in accident prevention, the director of the study, Dr. Walter V. Bingham, mentions a widower with several children who was undernourished and worrying about his home situation, a condition manifestly interfering with his efficiency and making him an unsafe operator.—Mental Hygiene Bulletin.

President Hoover on Health

In his inaugural address President Hoover said: "In public health the discoveries of science have opened a new era. Many sections of our country and many groups of our citizens suffer from diseases the eradication of which are mere matters of administration and moderate expenditure. Public health service should be as fully organized and as universally incorporated into our governmental system as is public education. The returns are a thousand fold in economic benefits and infinitely more in reduction of suffering and promotion of human happiness."

GENERALIZED LYMPHOSARCOMATOSIS WITH EXTENSIVE CRANIAL INVOLVEMENT

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The object of this communication is to record a case of generalized lymphosarcomatosis with unusual extensive involvement of the calvarium and cranial dura.

The patient, L. N., 45 years of age, was admitted to the Colorado General Hospital on August 21, 1928, complaining of headache, projectile vomiting and marked loss of vision. These symptoms appeared after an attack of "flu" five months ago. During the past three days he has been somewhat stuporous.

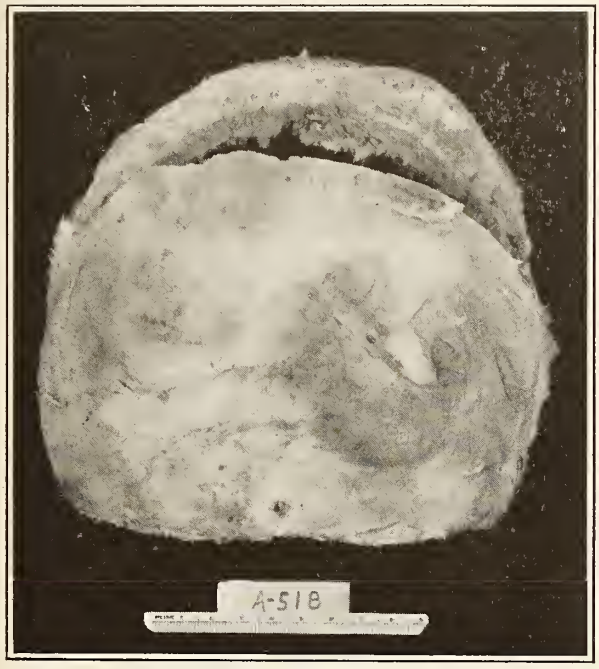


Fig. 1.
Calvarium showing sheet-like layer of tumor tissue on upper surface and on cross-section through frontal region the thickness of this layer over central portion. Note thinning out toward lateral borders.

Concerning the past history the following data were obtained from Dr. W. S. Chapman of Walsenburg, Colorado. In August, 1924, there was a generalized superficial lymph glandular enlargement, most marked in the popliteal spaces, and visual disturbances due to increased intracranial pressure. At that time the blood Wassermann was 4 plus and the symptoms were attributed to syphilitic disease of the lymph-glands and brain. A thorough course of anti-luetic treatment was given and both the blood and spinal fluid were then found to give negative Wassermann reactions.

Upon admission patient was semi-comatose. The head was large, the features coarse. The scalp was "thick and nodular." The superficial lymph glands were everywhere enlarged. Those in the axilla, groin and popliteal spaces were the most markedly enlarged. The thoracic and abdominal organs were essentially normal. The extremities showed marked wasting of the muscles.

Examination of the eyes by Dr. Finnoff revealed "before H. H. pupils large, 1 cm. in D., reacting poorly to light. No convergence. Vision O. D. fingers at 1 M. O. S. fingers at 1 foot. O. S. very frank neuroreteninitis with numerous massive exudates and hemorrhages into retina. Anomalous star figure in left retina. Lens is hazy. Vitreous fairly clear. A movable tumor mass between tarsus and skin—upper lid—semilunar in shape, 3 cm. by 1½ cm. O. D. Papilledema 4½—5D swelling. Hemorrhage on surface of disc. Some exudate in disc out into retina. Exudate around macula is stippled and of hard variety. Arteries moderately contracted. Veins distended. Exudates along vessels short distance from disc. Fundus findings suggest increased intracranial pressure."

Clinical and Laboratory Findings. Temperature 100, pulse 80, respiration 20, blood pressure 100/60. The urine was normal. Hemoglobin 92 per cent, R. B. C. 4,750,000. The leucocyte count was 19,800 with 64 per cent lymphocytes, 29 per cent polymorphonuclears and 7 per cent eosinophiles. Both the blood and spinal fluid Wassermann reactions were negative. The spinal fluid pressure was 480 mm.

X-Ray examinations of skull and chest were reported by Dr. Harvey as follows: "Sella turcica 15x20 mm. outline indistinct, posterior clinoid is partially eroded. There is an area of decreased density extending 5 cm. chiefly posterior to the sella. There is irregular destruction in skull giving a mottled appearance to entire skull. Pathological sella. Metastasis in skull. **Chest:** Dia-

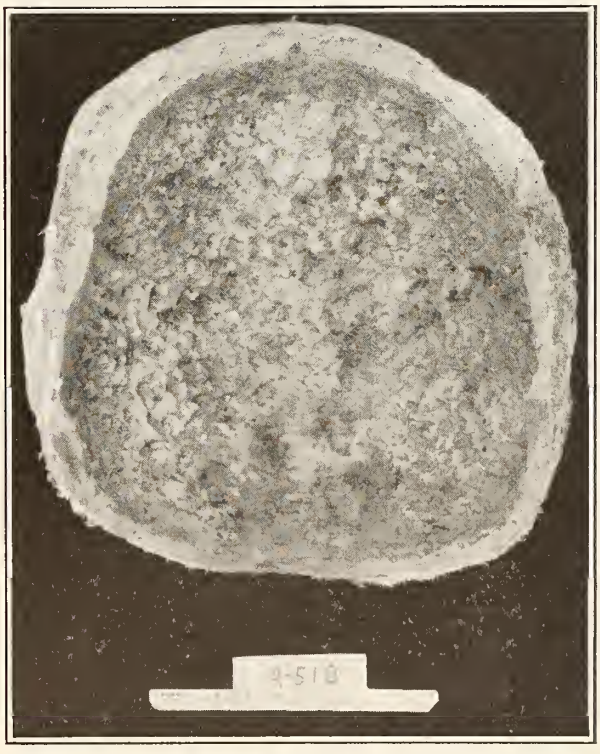


Fig. 2.
Inferior surface of calvarium showing needle-like spicules of bone.



Fig. 3.
X-ray appearance of a small segment of calvarium showing slight roughening of upper surface and perpendicular spicules on lower surface. phragm smooth, angles clear. Heart shadows negative. Hilus shadows increased density. No definite X-Ray evidence of metastasis".

The headaches and stupor were relieved by daily spinal fluid drainage. On September 1st the patient's temperature rose to 107 degrees, pulse 150, respiration 32; examination of chest showed signs of bronchopneumonia; and he died on September 3rd.

The necropsy was performed one hour after death. The body was well developed, though markedly emaciated and measured 170 cm. long. Rigor mortis was present throughout. The skin was dry and dark all over the body. Underneath the scalp was felt a firm, cushion-like layer of tissue extending from about the level of the middle of the frontal bone anteriorly, to the mid-occipital region posteriorly. Both upper lids were slightly edematous. The right pupil was slightly larger than the left; both regular and centrally placed. The lips were cyanotic. The chest and abdomen showed no abnormalities externally. Discrete, firm, slightly elastic, markedly enlarged lymph nodes were present in the cervical, supraclavicular, axillary, inguinal and femoral regions. The popliteal spaces were filled with large tumor masses. The epitrochlears were markedly enlarged on both sides.

During removal of the breast-plate a layer of soft, gray, vascular tissue 3 cm. wide and 1 cm. thick was found on the under surface of the sternum. The inferior border of this layer merged with a mass measuring 3 by 2 cm. in diameter lying at the right costo-phrenic angle, and one 2 by 5 cm. in diameter at the left costo-phrenic angle. There was a small fatty remnant of the **thymus** in the anterior mediastinum. The right pleural cavity was completely obliterated by dense fibrous adhesions. There were about 50 cc. of clear fluid in the left pleural cavity. The lungs were markedly emphysematous, congested and edematous, and in the lower lobes were a few small areas of early consolidation. The vessels and bronchi were normal. The **hilic glands** were small except for one which extended from the root of the right lung upward into the neck. It measured 5 cm. in diameter and 15 cm. long. When the lungs were removed a mass of tumor tissue was found on the inner surface of the 10th rib on the left. It lay external to the parietal pleura and did not erode the rib. It measured 2 cm. wide, 1 cm. thick and 10 cm. long.

The pericardial sac contained about 200 cc. of clear amber fluid. The **heart** weighed 250 grams, and except for a small cluster of pin point injected vegetations along the free border of left posterior leaflet of the aortic valve presented no abnormalities.

There were no adhesions or fluid in the peritoneal cavity. The **liver** weighed 1750 grams. The capsule was thin. On section numerous pin point grayish white dots were seen scattered throughout the organ. The **spleen** weighed 280 grams, but showed no abnormalities externally or on section. Each **kidney** weighed 140 grams and appeared normal except for a few scattered linear grayish white streaks in the cortical zones. The **suprarenals** were normal. The right kidney, ureter and suprarenal were almost completely enveloped by a layer of retroperitoneal tumor tissue. The **prostate,** which was of average size and consistency, on section showed scattered minute grayish white foci. The **urinary bladder, testes, epididymes** and **seminal vesicles** were normal. Along the lesser curvature of the **stomach** the mucous membrane contained several globular and linear elevations varying from 1 to 2 cm. in diameter. **Lymph nodes:** In addition to the enlarged superficial lymph nodes as described above huge tumor masses were found along the anterior surface of the vertebral column extending from the level of the attachment of the diaphragm down into the lateral walls of the pelvis and into both inguinal regions. There was a sheet-like

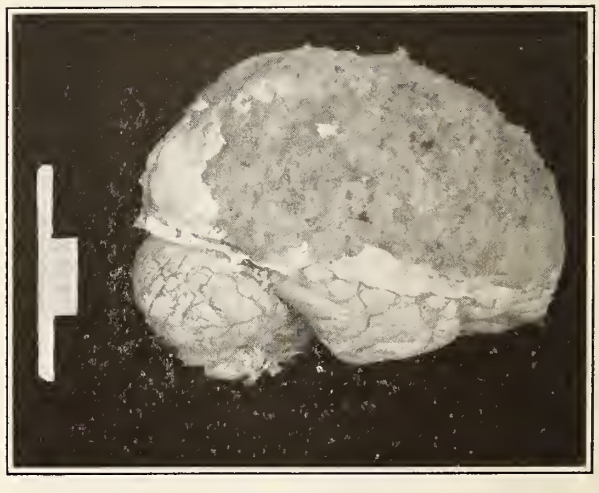


Fig. 4.
Upper surface of dura showing sheet-like layer of tumor. (Distribution of tumor is similar on left side.)

mass to the right of the vertebral column occupying the region from about the level of the first lumbar vertebra to below the crest of the ilium and laterally to the lateral border of the posterior wall. This mass almost completely enveloped the right suprarenal, kidney, ureter and aorta. There were numerous enlarged nodes in the mesentery of the small intestine, the lesser omentum and the transverse meso-colon. The lymph nodes everywhere on section appeared uniformly smooth grayish white, and showed but very slight tendency toward necrosis or hemorrhage.

Head. The scalp was found to strip easily from the underlying tumor tissue which covered the outer surface of the calvarium. The tumor tissue formed a continuous sheet extending from 2 cm. above the supraorbital ridge anteriorly to the middle of the occipital bone posteriorly, and laterally to the attachments of the temporal muscles. The surface of the tumor was smooth, but presented slight depressions over the regions of the sutures. On section the tumor tissue measured 2 cm. in thickness over the centers of the frontal and parietal bones, and thinned out to a few mm. in thickness at the margins of the tumor layer (Fig. 1). Upon removing portions of the tumor tissue the underlying surface of the calvarium appeared roughened and congested.

The calvarium cut with normal resistance, and was moderately adherent to the underlying dura. Its under surface, over an area corresponding to the region of the tumor involvement externally, was mottled grayish red and roughened. The roughening was due to small elevations of tumor tissue surrounding small needle-like spicules of bone which projected at right angles to the surface of the calvarium. (Figs. 2 and 3.)

The outer surface of the dura was covered by a layer of tumor tissue about 0.5 cm. thick over

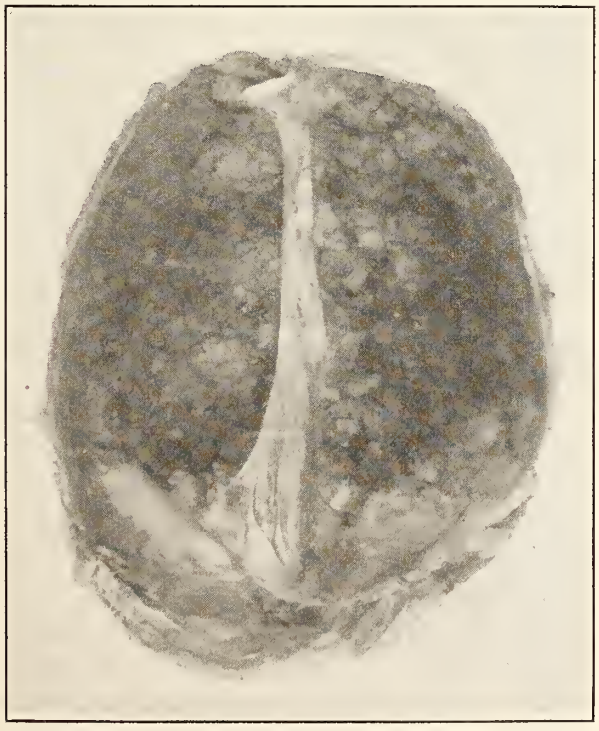


Fig. 5.

Inferior surface of dura showing fusion of globular masses to form a continuous sheet-like tumor layer. Note absence of tumor on falx cerebri.



Fig. 6.

Cross section through calvarium showing slight elevations of lamellae on upper surface and large spicule lying perpendicular to lower surface.

an area corresponding in extent with the region of involvement of the under surface of the calvarium. (Fig. 4.) The dura was firmly adherent to the brain. On the under surface of the dura the tumor appeared as a sheet of confluent, flattened nodules varying from 0.5 to 1 cm. in diameter. Except for terminating posteriorly at about the level of the lambdoid suture the region of tumor involvement corresponds in extent with that on the outer surface. There was no tumor involvement of the falx cerebri. (Fig. 5.) On section, the tumor tissue at its central thickest portion measured 2 cm. and diminished to a few mm. near the margins.

The brain weighed 1350 grams. The anterior two-thirds of the cerebral hemispheres were markedly flattened over the regions corresponding to the projections of the tumor nodules on the under surface of the dura. In places, the pia over these depressions was covered with adherent bits of tumor tissue which had separated from the tumor nodules of the dura during removal. Elsewhere the surface of the brain appeared normal. On section, the brain presented no other abnormalities. The sella turcica was enlarged, the posterior clinoid processes were flattened and softened. The pituitary was flattened, but otherwise normal. The pineal was normal.

Microscopic examination of numerous sections of the various **lymph nodes** revealed a complete loss of the normal architecture (no germinal centers), with replacement by very small cells with scant cytoplasm and large vesicular hyperchromatic nuclei. The stroma was fine and fibrillar throughout. The vascularity was abundant, the capillaries were dilated. In places, there were small foci of hyaline necrosis. Small areas of lymphoid cell infiltration were present in the liver, stomach, kidneys and prostate. Sections

of the calvarium showed a marked thinning out of trabeculae everywhere. The latter were widely separated by large areas of tumor tissue similar to that replacing the lymph nodes. The tumor tissue on both surfaces was continuous with the tumor in the depths through defects in the cortical lamellae. On the upper surface, some of the lamellae extended slightly beyond the level of the cortical layer; on the lower surface, lamellae of bone 2 to 3 mm. long projected perpendicularly beyond the free surface. (Fig. 6.)

Comment

It is not uncommon to find a sheet-like invasion or extension of a lymphosarcomatous growth in or about the organs of the abdominal or thoracic cavities. In the case just described this manner of extension was evident in the retroperitoneal region on the right side, and to a lesser extent in the retrosternal area. Although the cranial involvement is unusual, it is well to point out the similarity between the tumor growth on the surface of the calvarium and dura and the sheet-like growths in the other regions mentioned.

Another feature of interest is the occurrence of osseous lamellae extending perpendicularly beyond the surfaces of the calvarium. In this case it is evident that these projections are not new formations. From a study of the sections the impression is gained that they represent the displaced free ends of lamellae which have been thinned out and finally broken by the pressure of the tumor growth around them.

FREQUENCY OF GALL BLADDER DISEASE, AND ITS DIAGNOSIS AT AUTOPSY

BASED UPON A REVIEW OF 554 AUTOPSIES

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The percentage of grossly visible gall bladder abnormalities, incidentally seen at autopsy, is surprisingly high. In 1926 Mentzer[1] of the Mayo Clinic published his observations on this subject in a series of 612 autopsies. He reports a total of 62 per cent of grossly visible pathological changes in the gall bladder, a figure which rises to 66 per cent when young persons are omitted. This is the highest figure reported in the literature.

In our review all grossly visible gall bladder lesions are analyzed, and cholelithiasis is also separately considered. Miscropic examination of gall bladders removed at autopsy is generally unsatisfactory since autolysis takes place rapidly after death. It is rare to find the mucosa preserved, and the autolytic changes invade the deeper layers when necropsy is long delayed. Whenever the microscopic tissues were reliable they were checked against the gross findings. One case of a microscopically normal gall bladder was noted in which the gross examination showed a stone. This was a case of single cholesterol stone. This agrees with the general consensus of opinion that pure cholesterol stones may be found without inflammatory changes in the gall bladder. No doubt if all the gall bladders could be examined microscopically the percentage of lesions observed would be higher. Mentzer[1] found an additional 14.05 per cent of lesions of the gall bladder upon microscopic examination, where the gross findings were normal.

The correct interpretation of the gross pathological changes in the gall bladder and bile ducts may also be uncertain in necropsy material. The pathologist has certain advantages over the surgeon at operation, chief of which is that fact that minute dissections are possible; however, there are also such disadvantages as post-mortem discoloration, hardening of the specimen, precipitation of the bile constituents, autolysis of the mucous membrane, and distortion of the normal relationships.

The diagnosis is based upon the following considerations.

Anatomical anomalies. These include absence of the gall bladder, reduplication, abnormal shape and size, unusual attachment and position, and congenital membranes. The only marked anomaly noted in our series was a pendulous gall bladder with no attachments except at the neck.

Adhesions to the adjacent structures and

presence of disease conditions in these structures. Adhesions to the liver in the gall bladder notch are frequently difficult to evaluate especially in distinguishing them from congenital membranes. Inflammatory changes may be absent in the gall bladder wall in the presence of marked adhesions.

Color changes in the gall bladder wall. There is usually a greenish discoloration of the gall bladder and the adjacent structures at autopsy due to diffusion of bile. This may obscure the more delicate color changes in the gall bladder wall. A reddish gray instead of the normal slate blue color is almost certainly a sign of pathological change, however, in one case in this series this color change was due to edema, incidental to a general anasarca.

State of filling of the gall bladder. The viscus is normally never empty. Filling to the point of tension cannot be accepted as abnormal unless the tension is extreme. In hydrops the white color, thin wall, and distention, together are diagnostic, in empyema concomitant inflammatory changes are present.

The emptying of the gall bladder upon pressure. Unless there is complete obstruction of the system, this is hardly of much diagnostic value, because of post-mortem changes. At operation this procedure is condemned as mischievous by some surgeons, (Graham, Cole et al)[2] who believe that stones may thus be forced into the duct system. This same thing may happen at autopsy. The valves of Heister in the cystic duct certainly offer some resistance to the bile outflow under normal conditions and some investigators believe that normally bile does not return from the gall bladder. (Blond[3]-Halpert[4].)

Thickening of the wall due to hypertrophy, fibrosis, inflammation or infiltration by tumor. Any marked thickening may be detected by palpation, for minor degrees section of the wall is necessary. The Westphal hypertonic or stasis gall bladder which he believes to be the cause of a certain functional gall bladder colic is characterized in its final state "by a more powerfully developed musculature, the greater development of Luschka's crypts and the somewhat greater prominence of the cellular elements of the mucosa." (Aschoff[5].) But to recognize this condition requires a very fine judgment and intermediate changes can hardly be identified.

Thinning of the gall bladder wall. This may be associated with overdistention and is part of the picture of the hypotonic gall bladder. Atrophy due to age and systemic disease should be possible in the gall bladder as well as in other organs; however, I have been unable to find any reference on this subject.

Concomitant liver changes. Since the lymphatic anastomosis between the liver and gall bladder is intimate coincident liver changes may be expected. (Graham et al.[2]) And indeed these authors state, "that in many cases, perhaps in a majority, cholecystitis represents a direct extension to the wall of the gall bladder from a liver already inflamed." (Graham et al.[2]) Martin[6] radically disagrees with these authors. In any event concomitant liver changes are commonly seen in gall bladder disease. Subcapsular scarring is a common finding in gall bladder disease, and the scarring beneath the capsule over the gall bladder notch is known as Weible's[7] subcapsular scarring and is considered to have diagnostic value. Minor pathological changes such as abnormal periportal round cell infiltration and moderate periportal fibrosis can be detected only microscopically. However, grossly visible cirrhosis is not uncommon. Cholangitis in various grades is frequently seen where stones obstruct the common or hepatic ducts.

Fat around the gall bladder. Moynihan[8] considers an abnormal amount of gall bladder fat of diagnostic importance. We have occasionally seen it in chronic inflammation around a shrunken thick walled gall bladder.

Lymph node enlargement. The enlargement of the "sentinel gland" at the junction of the cystic and common duct may be indicative of inflammatory or malignant disease of the gall bladder.

The appearance of the opened viscus. The difficulty in judging the condition of the mucous membrane after death due to early au-

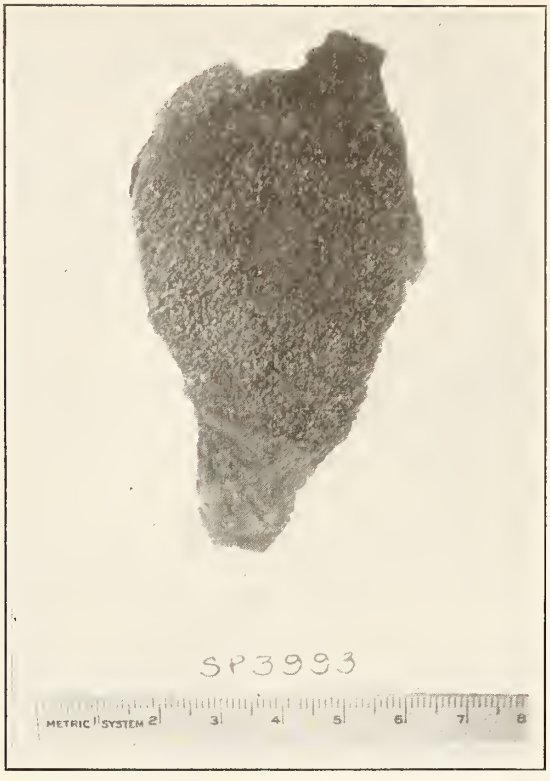


Fig. 1. Strawberry gall bladder with pure cholesterol stone.

tolytic changes has already been mentioned. A complete ante mortem desquamation due to inflammation is considered rare even in acutely inflamed gall bladders. The normal honeycomb appearance is accentuated in hypertonic gall bladders. Diverticula and erosions may be seen with stones. In papillomatosis the mucous membrane is thickened sometimes even to the point of polyposis. In cholesterosis white streaking may be grossly visible along the ridges of the folds but milder degrees of this condition can be detected only in sections. The classical strawberry gall bladder picture is apparently not so common. The accompanying illustration (Fig. 1) is a photograph of such a case, recently removed by surgery.

The appearance of the bile. The bile concentrating function of the gall bladder is established, therefore a thick tarry bile is a normal finding and a thin golden yellow bile may indicate a poor concentrating power of the viscus. White bile in hydrops, pus in inflammation, or a thin watery brown bile in chronic inflammation need no discussion. Precipitates other than stone are enumerated by Aschoff.[9]

Bacteriological examinations of the gall bladder bile. The evidence presented by numerous investigators on this subject appears to establish the fact that cultures from the ground up wall of the gall bladder are more important than cultures from the bile itself and that a streptococcus with elective powers for the gall bladder wall may be the chief etiologic agent of cholecystitis. (Rosenow.[10])

The presence of gall stones. The reader is referred to the lecture on "The Origin of Gall-stones" by Aschoff[9] for a discussion of this subject. For practical purposes it seems sufficient to divide stones into two large groups: non-inflammatory, typified by the pure cholesterol stones, and inflammatory, represented by the calcium-pigment-cholesterin or combination stone.

Summary of autopsy findings. Chart I illustrates graphically the sum total of gross pathological changes of the gall bladders in our series of autopsies. The incidence in 554 cases of both sexes is 20.57 per cent. The age of the youngest individual with demonstrable gall bladder disease was 23. Omitting all cases below the age of 20 the incidence rises to 26.63 per cent.

Even our low figure of 20.57 is a high percentage. It means that one out of every five persons is afflicted with gall bladder disease. This figure is all the more important when we consider that by far the largest number are not diagnosed and some are not even suspected before death. Of our series of cases with gall bladder lesions only 10.7 per cent had an ante mortem diagnosis made, although an additional 9.7 per cent gave a history of some of the classical gall bladder symptoms.

Chart I also shows graphically the age and sex incidence. Beginning with the 3rd decade there is a gradual rise. The peak is reached in the 9th, with the high figure of 53.84 per cent. We are unable to give an explanation of the drop in the 8th decade. There is a decided drop in both sexes and Chart II shows a similar drop in gall-stone disease. The ratio between males and females is 1 to 1.15. The ratio is usually given as 1 to 2. Some factor which has not been undisputably established does predispose the

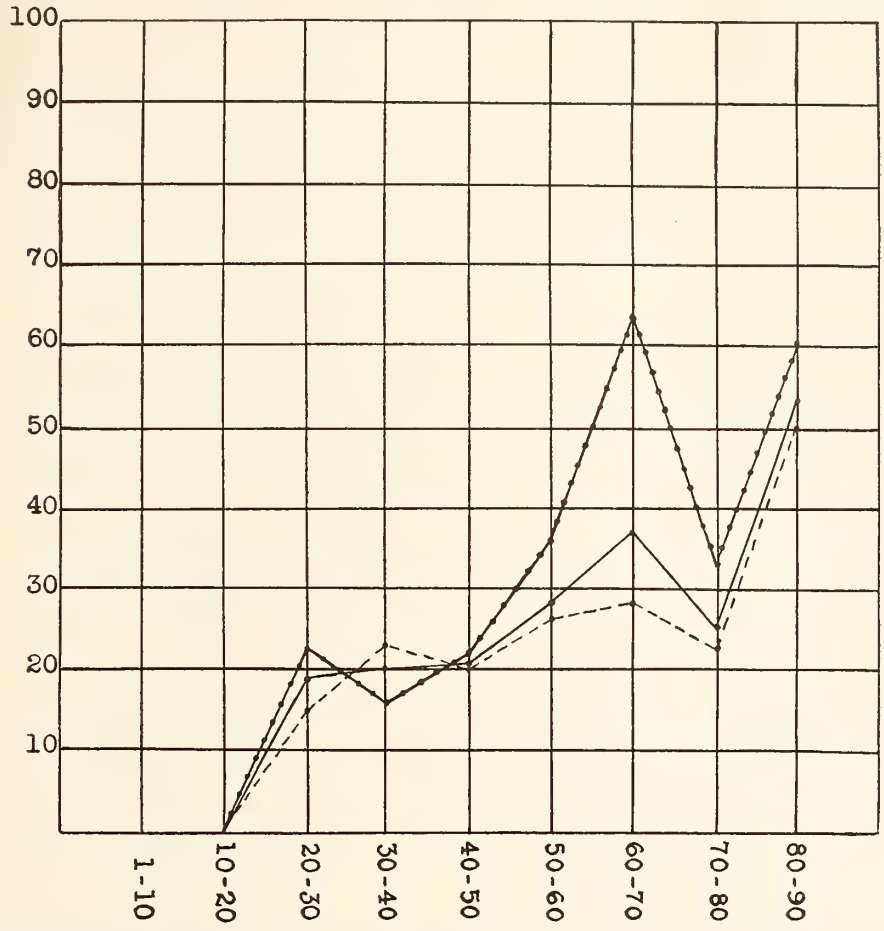


CHART I Male and Female ——— Ordinate: Percentage of incidence
Female -·-·-·- Base: Ages by decades
Male - - - - -

MALE AND FEMALE No.of Autop-sies	Ages	% Gall Bladder Lesions	FEMALE No.of Autop-sies	Ages	% Gall Bladder Lesions	MALE No.of Autop-sies	Ages	% Gall Bladder Lesions
102	(1-10)	0	40	(1-10)	0	62	(1-10)	0
24	(10-20)	0	12	(10-20)	0	12	(10-20)	0
51	(20-30)	19.60	31	(20-30)	22.58	20	(20-30)	15.00
65	(30-40)	20.00	26	(30-40)	15.38	39	(30-40)	23.07
82	(40-50)	20.73	28	(40-50)	21.42	54	(40-50)	20.37
98	(50-60)	28.57	25	(50-60)	36.00	73	(50-60)	26.02
79	(60-70)	36.70	19	(60-70)	63.16	60	(60-70)	28.33
40	(70-80)	25.00	9	(70-80)	33.33	31	(70-80)	22.57
13	(80-90)	53.84	5	(80-90)	60.00	8	(80-90)	50.00
554		20.57%	195		22.56%	359		19.49%

female sex to gall bladder disease. That pregnancy plays a role in gall-stone formation has been proved, but in how far that is true of other gall bladder diseases remains to be shown. In fifty-seven consecutive surgical cases reviewed the ratio between males and females is 1 to 2.16. This difference in the ratio might be due to the fact that gall bladder disease is more commonly anticipated in the female sex in making a clinical diagnosis.

Chart II shows graphically gall-stone disease in the 554 autopsies. Sixty gall bladders with stones were found. This makes a total incidence of 10.83 per cent. The most prominent fact is that no stones were found

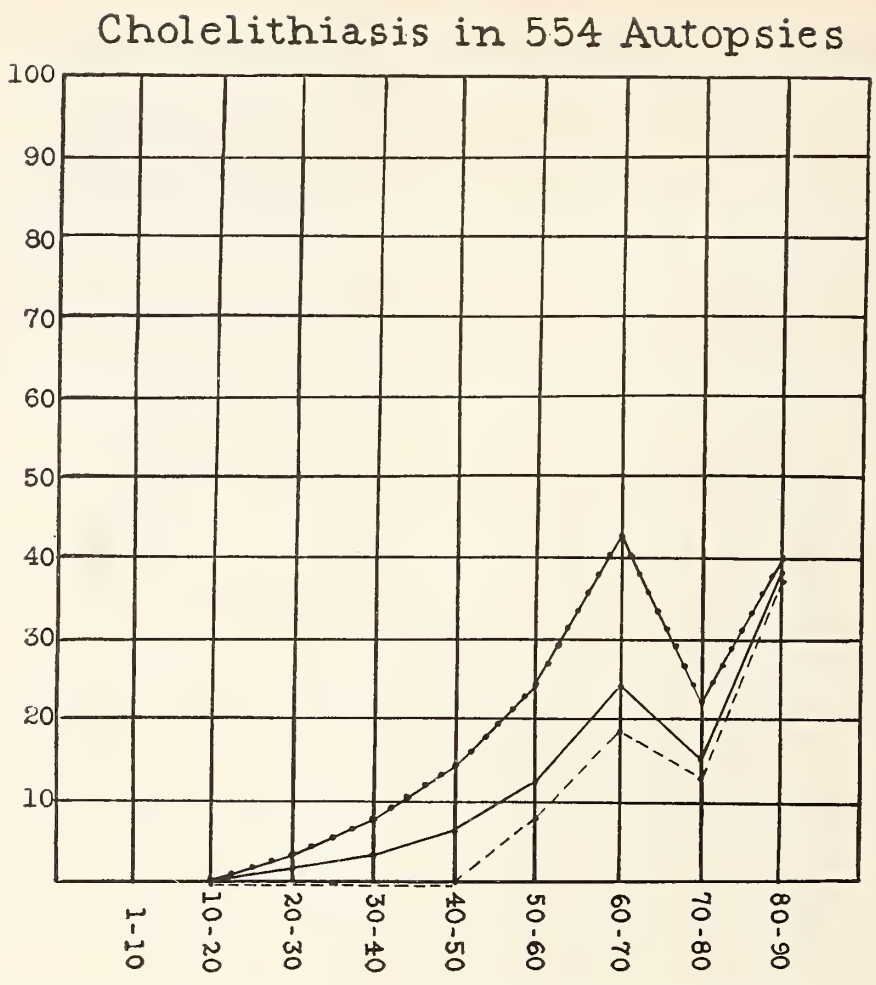


CHART II Male and Female ____ Ordinate: Percentage of incidence
Female ------ Base: Ages by decades
Male -----

MALE AND FEMALE No.of Autopsies	Ages	% Gall Stones	FEMALE No.of Autopsies	Ages	% Gall Stones	MALE No.of Autopsies	Age	% Gall Stones
102	1-10	0	40	1-10	0	62	1-10	0
24	10-20	0	12	10-20	0	12	10-20	0
51	20-30	1.96	31	20-30	3.22	20	20-30	0
65	30-40	3.07	26	30-40	7.61	39	30-40	0
82	40-50	6.07	28	40-50	14.28	54	40-50	0
98	50-60	12.24	25	50-60	24.00	73	50-60	8.21
79	60-70	24.05	19	60-70	42.22	60	60-70	18.33
40	70-80	15.00	9	70-80	22.22	31	70-80	12.90
13	80-90	38.46	5	80-90	40.00	8	80-90	37.50
554		10.83%	195		13.33%	359		6.68%

in males below the age of 50. Aschoff[9] states that stone formation depends upon the following three factors: hypercholesterinemia, stasis, and inflammation. Hypercholesterinemia and stasis both are conditions present in pregnancy and the high incidence of stones in the female in the child bearing age is probably due to this fact. Obesity may produce stasis and in rapid obesity cures hypercholesterinemia may occur. (Aschoff.[9]) Altered metabolism and lipoid disturbances such as are evidenced by arteriosclerosis in the aged may play a part in stone production in the male sex after 50. Only one case of a pure cholesterol stone without inflammation was seen; however, many of the gall bladders had one large primary cholesterol stone with many secondary

inflammatory stones. This agrees with Aschoff's conception that pure cholesterol stones are innocent, but that they may produce obstruction, that obstruction may result in inflammation and thus secondary inflammatory stones may be produced. Our total incidence of 10.83 per cent of cholelithiasis agrees closely with the total average incidence of 9.9 per cent in twenty necropsy reports from various countries as listed by Mentzer.[1]

The ratio between the male and female is 1 to 1.99. The ratio usually given is 1 to 5. It would seem that this ratio depends largely upon the ages of the individuals since the difference in gall-stone incidence between the two sexes is much greater before the age of 50. In fifty-seven consecutive surgical cases the ratio is 1 to 2.

Four cases of carcinoma were seen. Two of these were apparently primary in the gall bladder and both were associated with stone. This means that 6.66 per cent of stones were accompanied by carcinoma, thus agreeing with Rolleston's[11] statement that from 4 to 14 per cent of all cases of cholelithiasis are associated with carcinoma. The other two cases were carcinoma of the common bile duct and were associated with cholecystitis, but not with cholelithiasis.

Even our high figure of 26.63 per cent of gall bladder disease seems all out of proportion to Mentzer's[1] high figure of 66 per cent, and the following explanation is offered. Mentzer himself points out that a relatively high percentage of patients with gall bladder disease register at the Mayo Clinic. Now we note that his total gall-stone figures are also nearly twice as high as ours. Since the diagnosis of stone is not dependent upon personal interpretation it seems reasonable to argue that if his gall-stone incidence is twice as high as ours all other gall bladder disease may also be expected to be higher. Another factor which could not be checked in Mentzer's report is the following. His average age incidence might be higher than ours and he may have had more autopsies in the gall bladder age than we in our series. Finally there is the personal element of interpretation. Mentzer's incidence of cholesterosis and papillomatosis seems to be much higher than ours and we may have overlooked some minor degrees of these conditions.

We believe that our figures are as nearly correct as can be expected in necropsy material.

Summary

Pathological changes in the gall bladder were found in 20.57 per cent of 554 autopsies.

Cholelithiasis was present in 10.83 per cent of 554 autopsies.

The ratio between males and females was 1 to 1.15 in all gall bladder disease and 1 to 1.99 in cholelithiasis.

Gall bladder diseases are very rare below 20, not uncommon between 20 and 40, and common after 40.

Only 10.7 per cent of the cases of gall bladder diseases found at autopsy were diagnosed before death.

REFERENCES

[1]Mentzer, Stanley H.: A Clinical and Pathological Study of Cholecystitis and Cholelithiasis. Surg., Gyn. and Obst. 1926, xlii: 782.

[2]Graham, Cole, Copher and Moore: Diseases of the Gall Bladder and Bile Ducts. Lea and Febiger, Philadelphia. 1928.

[3]Blond, Kaspar: Eine neue Arbertshypothese zur Erklärung der Gallenwegsprobleme. Arch. f. klin. Chir. 1928, cxlix: 662.

[4]Halpert, Béla: New Aspects of the Formation and Classification of Gall Stones. Arch of Path. 1928, vi: 623.

[5]Aschoff, Ludwig: Extrahepatic Bile Passages. Lectures on Pathology. Paul B. Hober, Inc., 1924, 202.

[6]Martin, W.: Hepatitis and Its Relation to Cholecystitis. Ann. Surg. 1927, lxxxv: 535.

[7]Weible, R. E.: Visible Changes in the Liver in Chronic Cholecystitis. Surg., Gyn. and Obst. 1925, xl: 94.

[8]Moynihan, B.: The Early Signs and Symptoms of Cholelithiasis. Brit. Jour. Surg. 1922, x: 12.

[9]Aschoff, Ludwig: The Origin of Gall-stones. Lectures on Pathology. Paul B. Hober, Inc. 1924.

[10]Rosenow, E. C.: The Etiology of Cholecystitis and Gall Stones and Their Production by Intravenous Injection of Bacteria. Jour. Infec. Dis. 1916, xix: 527.

[11]Rolleston, H.: Diseases of the Liver, Gall Bladder and Bile Ducts. W. B. Saunders Co., Philadelphia, 1905, 629.

ANNOUNCEMENT

There exists in Vienna, Austria, the American Medical Association of Vienna, which is a a well developed organization that exists for the purpose of facilitating post-graduate medical work for English speaking physicians. All of the English medical courses given under the auspices of the University of Vienna are administered through this organization.

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THE PRINCIPLES OF THE POSTERIOR LOBE OF THE PITUITARY GLAND

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The pituitary body was regarded by the ancients as the abode of the soul and the source of the slimy mucous juice which appears in the nose. Galen taught that the brain got rid of its excrementitious matter by way of the gland, hence its name *pituita,* meaning slime or refuse. This view of the origin of nasal catarrh persisted into the eighteenth century. Modern knowledge of the physiological role of the gland dates from Marie's discovery (1886) of a "peculiar non-congenital hypertrophy of the upper, lower and cephalic extremities," which is now called acromegaly. The role of the hypophysis in this syndrome was pointed out a year later by Minkowski. Subsequent research has shown the gland to have very important but complex functions. We are still, however, far from a complete understanding of these functions.

Anatomy

The pituitary body lies at the base of the brain in the sella turcica and is attached to the floor of the third ventricle by a short stalk—the infundibulum. It is divided by a cleft into two lobes—a large anterior and a small posterior. These two lobes differ in their development, histology and functions. The posterior lobe is in turn divided into the pars intermedia and pars nervosa. Pituitary extracts as ordinarily made contain the active principles of both divisions of the posterior lobe.

Physiological Activities of Extracts of the Posterior Lobe

Extracts of the posterior lobe exhibit three major physiological actions following their injection.

I. An action on the musculature of the uterus stimulating it to increased functional activity. It is sometimes assumed that pituitary extract is a general stimulant for plain muscle. This is probably not true.

II. An action on the circulation resulting in a considerable rise in blood pressure lasting from ten minutes to one-half hour. This is due to a widespread vasoconstriction and is accompanied by a slowed pulse. Repeated injections of pituitary extract at short intervals produce little or no rise in blood pressure. More often a marked fall is observed. This phenomenon, which is not entirely understood, is of practical importance when repeated injections are given for the purpose of raising the blood pressure in shock. The vessels of the kidney are an exception to the general vasoconstriction. These vessels dilate.

III. An effect on the salt content and volume of the urine. This action is the most complex and least understood of the three. It is also, probably, the most important.

An injection of pituitary extract in the experience of the writer always increases the excretion of chlorides in the urine. This is often quite marked. The volume of the urine may be greatly increased or decreased, according to the amount of water recently ingested by the individual. Contrary to what might reasonably be expected when the administration of the extract is preceded by the ingestion of a large amount of water, a marked and prolonged antidiuresis results. The writer has observed under these conditions an antidiuresis in rabbits lasting from twelve to eighteen hours. This effect is in line with clinical experience in the treatment of diabetes insipidus with pituitary extract. Here, also, the administration of the extract is preceded by the ingestion of a large amount of water. It is a common practice in the treatment of shock to "push fluids." Repeated injections of pituitary extract during this procedure, therefore, tend to diminish the excretion of urine. As above mentioned, if the injections are repeated at short intervals there is also a marked tendency to cause a fall in blood pressure. **It is evident, therefore, that pituitary extract may do harm in shock if it is not used with due caution.** On the other hand, if the injection is preceded by a period of limited water intake a

diuresis follows. In the method developed by the writer for the bio-assay of the renal activity, the experimental animals receive no water for the preceding twenty-four hours. With animals so prepared a diuresis always follows injection. It is interesting to note that whether diuresis or antidiuresis occurs, there is always a marked increase in the salt content of the urine.

In addition to the three above mentioned major activities, pituitary extract has a number of minor actions, some of which are used clinically.

IV. A depressor action, which is evidenced by a fall in blood pressure immediately following the injection and preceding the usual rise. This depressor action is probably not due to the pituitary hormones and is generally regarded as being due to an impurity. Although this depressor substance is undesirable and may easily be removed by extraction of the powder by means of absolute ethyl alcohol, most commercial preparations contain it in varying amounts.

V. An action on the intestinal musculature, resulting in an increase of its tone. This was first noticed by Blair Bell (1909), who produced defaecation in rabbits by means of a commercial preparation. The extract has since come into wide use for the relief of postoperative gas-distention. This action is also thought to be due to a non-specific impurity, probably histamine or a histamine-like substance. The amount of this intestinal stimulant present varies with different commercial brands and bears no quantitative relationship to the amount of the true hormones present. Properly prepared, pituitary extracts do not contain a greater amount of this intestinal stimulant than extracts similarly prepared from other organs. Since the amount of this intestinal stimulant or histamine (?) present is much greater in carelessly prepared extracts than in those which have been properly prepared, it may be fairly said that the ability of a particular brand to relieve gas pains is not a measure of the potency of the extract but rather of its unfitness for clinical use. The occasional occurrence of anaphylactic-like responses following pituitary administration is probably due, at least in part, to the presence of a large amount of this histamine-like body.

VI. A marked galactagogue effect. This is probably due to a true autacoid which resembles the galactagogue autacoids found in other organs, i.e., corpus luteum. The effect of the autacoid is not to cause the cells of the gland to form and secrete an increased amount of milk, but only to cause the alveoli to empty themselves of the milk which has been previously formed and secreted within them. The daily output of milk is not changed.

VII. The posterior lobe is concerned in carbohydrate metabolism. Hypopituitarism is associated with an increased tolerance for sugar. According to Cushing, animals from which the posterior lobe has been removed will not exhibit glycosuria even after removal of the pancreas. On the other hand, the injection of the extract produces hyperglycaemia and prevents the hypoglycaemia ordinarily following the administration of insulin. Insulin also opposes the action of the extract on the isolated guinea-pig uterus. In this connection it is interesting to note that an enlargement of the pituitary gland occurs in pregnancy and that this condition is also frequently associated with glycosuria and lowered tolerance for sugar. That pregnancy is accompanied by an increase in the functional activity of the posterior lobe is indicated by the appearance in the spinal fluid, during labor and immediately afterwards, of some substance, presumably pituitary hormone, which excites the isolated guinea-pig uterus to contraction. It is possible that this latter phenomenon may be of importance in determining the onset of labor.

Chemistry of the Hormones

Although numerous attempts at purification have been made, the hormones have never been isolated in a pure state and little is known of their chemical composition. The most successful attempt was that of Abel and his associates. These workers obtained from the gland a tartrate of the oxytocic hormone having an extraordinary potency. One milligram of this tartrate possesses an activity equivalent to that of one liter of the official extract. Although still impure it is probably

the most powerful drug known. The final purification of this hormone is obviously a difficult undertaking. From their behavior to chemical reagents the hormones are thought to be closely related amines.

A series of investigations, culminating in the work of Kamm and his associates, have definitely proved that the gland contains at least two different hormones. One of these has an oxytocic action but no action on the blood pressure or urine secretion. These two latter major activities may be due to one or more than one hormone. This achievement represents an important step towards rational pituitary therapy. The results of Kamm's researches are now available in the commercial preparations "Pitocin" and "Pitressin" (Parke, Davis & Co.).

Since the chemistry of the hormones is unknown, the pharmacopeia directs that the extract be standardized by bio-assay. This is done by comparing the action of the extract of unknown potency with that of one of known potency on the isolated guinea-pig uterus. It is obvious, in view of the above, that such an assay gives no information concerning the presser and renal activities of the extract. In order to be sure that these activities are present in the correct strength, it is essential that they also be assayed. This, unfortunately, is usually not carried out by the manufacturers of commercial extracts. In the experience of the writer these two activities are relatively easily injured and it is not surprising, therefore, that such extracts are often grossly understrength. This may explain the occasional disappointments encountered in the treatment of shock and diabetes insipidus with pituitary extract.

SOME OBSERVATIONS REGARDING INFLUENZA AS IT AFFECTS INFANTS AND CHILDREN*

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This paper is to deal largely with personal observations and interpretations regarding influenza and is not to be considered authoritative or academic in any way.

During the recent epidemic of so-called influenza, I have had an excellent opportunity to study many peculiar clinical manifestations of this disease. As will be shown, it fights not under its own banner alone, but under that of many other infections.

A discussion of influenza in children is particularly timely for the reason that there has been a definite epidemic among them during the past few months. As with previous outbreaks, this one is occurring between December and March. Each epidemic has also been characterized by certain peculiarities in localization and virulence. The presenting symptoms may be so odd and the complications so varied it is tempting during an epidemic to diagnose nearly all diseases as influenza. Whatever may be the exact nature and cause of the clinical syndromes, about to be described, this much seems certain, there are few diseases which cause such universal infection as influenza.

Pfeiffer originally described the influenza bacillus as found only in the nasal passages and regarded the post-influenza nervous symptoms as being toxic in origin. Since that time much controversy has arisen as to whether Pfeiffer's bacillus is the causative organism producing the varied illnesses dubbed as influenza. Some very learned individuals go so far as to say this organism has nothing to do with the clinical conditions under consideration because the influenza bacillus cannot be regularly found or obtained in those suffering with grippe. None of us, however, are backward in diagnosticating the condition and proceed to treat it with considerable confidence.

In a recent article entitled, "Suppurative Diseases Due to the Pfieffer's Bacillus," occuring in the Presse Medicale, December 18, 1928, page 273, by Legroux and Giroud of the Pasteur Institute, some new ideas regarding infection by the influenza bacillus are set forth somewhat as follows: "The difficulty in culturing the Pfeiffer bacillus on

*Read at Spring Clinic, University of Colorado, March 22, 1929.

ordinary media has interfered with the interpretation of the clinical history in many cases. There would be many more cases of suppurative disease charged to this organism if the bacteria were grown on media containing the hormones of the blood cells rather than on one containing hemoglobin alone.

"The Pfeiffer bacillus is hematophilic rather than hemoglobinophilic. The organism varies in shape from a fine rod to an almost cocci like form, occasionally giant like. The coloration on staining may be bipolar.

"The bacillus is normally found in the upper air passages. When the body resistance is lowered from any cause and the defenses correspondingly weakened, the bacteria increase in number, especially in infants and old people. In the young especially the tonsils are found to harbor innumerable bacteria of this type. In bronchitis fully 10 per cent of the flora are made up of Pfeiffer's bacilli. In certain cases, by its abundance, it produces a pathological reaction, soon accompanied by other organisms, such as: streptococci, staphylococci, and pneumococci, etc.

"Suppuration in the bronchioles during bronchopneumonia is probably due to the multiplication of the Pfeiffer's bacillus. If death occurs in a few hours only the Pfeiffer's bacillus is discerned; 'It is to capillary bronchitis what the pneumococcus is to pneumonia.'

"If the Pfeiffer bacillus is not found in ordinary smear examination of the pus in purulent bronchitis, if cultured, as described above, it will often be revealed.

"The organism may be found in suppurative arthritis, endocarditis, pericarditis, sinusitis, otitis, perinephritis and bronchopneumonia as the cause of the disease.

"Our observations show the Pfeiffer bacillus to be a pyogenic organism which may develop in any tissue or organ of the body."

The above quotation is a summary on one of the few recent pieces of research at one of the world's foremost centers of learning, attempting to justify the etiology and pathology of the influenza organism as we see it clinically. One cannot help but feel that the organism undergoes some change in its morphology to occur as a different organism after it has lived for sometime and multiplied rapidly enough to kill the host or to localize in some joint or serous cavity. If this is not the case, it prepares the tissues through its toxins to invite other organisms to thrive. It is strange that influenza is so contagious; many times we have seen all members of the family stricken almost simultaneously, while the so-called secondary invaders obtained in puncture fluids by staining and cultural methods, never show such marked tendencies in regard to contagiousness or infectivity.

In preparing this discussion of influenza in children, it is based upon a study of fifty-three hospital cases, but before proceeding further, let me summarize briefly some of the types of the disease encountered, types quite definite in both their clinical and physical syndromes.

1. The nasal pharyngeal variety, usually referred to as grippe, with coryza, a thin mucus nasal discharge often excoriating the parts it touches, conjunctivitis, repeated sneezing, which is exaggerated by changes in temperature, and a red congested throat, the inflammation invading and involving the tonsils and pharynx, is the most common type. That the reddish blue tinge of the anterior pillars of the tonsils may persist for weeks after convalescence seems to have been well established. It seems that as long as this infectious blush to these parts remains, the patient tires quickly and lacks the pep and vigor he formerly had. In this group of cases the temperature varies from 100 to 104. At the onset the appetite is poor and continues poor throughout the course of the disease. Very shortly there is an extreme loss of weight and strength, entirely out of all proportion to the apparent illness. During this time there is a sharp fall in the systolic blood pressure which may well account for the profound muscular weakness and the readiness with which the patient tires on slight exer-

tion. The persistent headache, which frequently follows influenza, may also be thus explained. This variety of influenza is very common this season and it is particularly prone to several relapses before complete recovery. The frequent sneezing and nose blowing may explain, in part, how the infection is extended into the sinuses and eustachian tubes, resulting in otitis media and infection of the para-nasal sinuses. The chest and abdominal viscera are peculiarly immune in this type of the disease, the duration of which is about seven to ten days.

2. The respiratory type: This syndrome shows as a marked congestion of the upper respiratory tract, giving rise to an irritating tracheitis and laryngitis. There is an increasing hoarseness and a dry paroxysmal, uncontrollable cough and frequently substernal pain. The cough may readily be mistaken for whooping cough. Many of the remarkable cures for whooping cough, through the use of pertussis vaccine, in reality may be this influenzal cough, which frequently subsides in less than a week. The explosive coughing efforts occasionally, especially as the disease begins to abate, is productive of small nummular masses of semi-inspissated mucus resembling a ball of semi-hardened glue. In infants, where the coughing efforts are feeble, this glue-like substance accumulates in such amounts that the respiratory rhythm is much interfered with. The little patient resembles the appearance of a baby dying of laryngeal diphtheria. The facies is of an ashen color and the extremities cyanotic, the pulse soft and rapid. There is much pulling of the diaphragm and intercostal spaces. Laryngeal and tracheal aspiration or intubation is the only salvation of these patients. Tracheotomy permits crusting or plug formation and secondary infection, and usually kills the patient.

3. In the third, and most common type, the symptoms begin suddenly and violently with a sore throat and copious exudate on the tonsils, indistinguishable from diphtheritic angina. The coryza and mucus membranes are affected as described above, but within a few hours a severe bronchitis develops and signs similar to bronchopneumonia. However, it does not proceed like a genuine bronchopneumonia; it seems to be more of a violent congestion and edema involving the affected parts. Soon there is a migration or extension of the inflammation to a new pulmonary region, with exaggeration of the chest signs. A repetition of this improvement and then getting worse again, may last for only a day or two or may continue for weeks. One thing which will certainly cause a spread of the pulmonary infection is exposure to cold, or the breathing of cold air or the administration of opiates in sufficiently large doses to cause the child to be dopey and slow its respirations. In this syndrome there is always signs of physical exhaustion and toxemia. In this variety the heart is most frequently attacked. It may be only a myocarditis or definite endocarditis may develop. The death rate was 3 per cent.

4. The gastro-intestinal type is very common, frequently severe and occasionally fatal. In this variety the symptoms may begin as in any of the three types already described. Where there is abundant post-nasal discharge and violent sore throat, with tonsilar exudate, and much pharyngeal edema, the bowel is more likely to be involved. At first there may be marked constipation, with cramps and abdominal distention. This is soon followed by diarrhea of undigested food and much mucus that may be streaked with blood. The stools frequently have a very foul odor of putrefying meat, or as the mothers frequently say, "the bowel movements smell like something dead." Sometimes the vomiting is so severe and frequent that the child is exhausted and may lapse into semi-consciousness. If the diet is largely milk, the vomitus consists of enormous curds, some of such size that the child has great difficulty in vomiting them. The large, tough curds, produced early in this disease, and thus vomited, is a very characteristic symptom. This curd formation may well account for much of the restlessness, upper and later, general abdominal pain, and the diarrhea which occurs about forty-eight hours after the first upper respiratory symptoms develop. These curds cannot be dissolved in the

alloted time by the digestive ferments, the result is putrefaction.

Several of my patients have vomited from the onset a dark brownish liquid, giving laboratory tests for blood. This may be interpreted as a gastritis, sufficiently severe to cause blood to ooze from the mucosa slowly, is altered by the gastric secretion and then vomited. In a similar way blood may occur in the bowel passages.

Abdominal symptoms attributed to influenzal infection may be most varied, obscure and alarming in character. They may mimic appendicitis so that the most careful observer cannot be sure of his diagnosis. At times abdominal influenza gives a perfect picture of intestinal obstruction, of renal calculi in transit, acute pancreatitis or acute primary peritonitis. The safest plan, when in doubt whether or not to employ surgical means, is to wait four or five hours. It is strange that in most instances, if the condition is influenza, operation will not be needed and there will be a great change for the better. A few high points in a case history may help to clarify and vivify this condition.

The child four years of age, whose condition is about to be described, came to the Presbyterian Hospital with his father, who had just recovered from influenza, to visit his mother and her six-months baby. The baby entered the hospital five days previously with bronchopneumonia, apparently influenzal in type. The mother shared the room at the hospital with her baby that she might nurse it at the breast. During its illness the mother acquired the disease, respiratory type, running a temperature varying from 102 to 105 for about a week. All of this is set down to show the contagiousness of the infection and in an attempt to prove that the malady was influenza, the father developing it first, then his infant, then his wife, and finally his son. The young son, while in the room with his mother, did not appear well, his face was flushed and about his mouth was a circumoral pallor. Without any warning he vomited and then complained of general pain and tenderness throughout his abdomen. The greatest distress was in the upper half of his abdomen. At this time his rectal temperature was 103.5. From this point on he refused, stoutly, all food, drink and medication and he fought like a tiger against any means to relieve him. The vomiting persisted for two days despite what was done. His temperature remained high for four days and he coughed a little. Physical examination and x-ray of his chest revealed no pathology there. The laboratory findings showed a little albumin, an occasional fine granular cast and some acetone in the urine, the W. B. C. numbered 26,500, with 86 per cent polys at the height of the disease. On the evening of the fifth day following his admission his temperature was normal, as was the mother's and the baby sister's. He sat up in bed, played with some toys and an early convalescence seemed assured. At 11 p. m. that evening he was suddenly taken with such violent pain in the abdomen that his screaming kept all the patients on his floor, the floor above and below, awake. Increasing amounts of morphine, sufficient to equal an adult dose, had no effect in relieving his distress. His knees were drawn up to his chin, his face was an ashen color, he vomited frequently a few teaspoons of dark brownish material and the abdominal muscles were splinted as though they were frozen into position. Rectal examination showed dilatation, which is a good sign of peritonitis and indicates that the prognosis is poor. He had, as is the usual finding when the abdominal type of influenza is present, a very high W. B. C. count, 28,200 with 86 per cent polys.

At this juncture Dr. Geo. P. Packard, Jr., was called in consultation. After due consideration and weighing the evidence carefully, for we had both seen such cases together previously, decided that peritonitis was present and the best course was to open the abdomen under gas anesthesia. On doing so, much free fluid, serosanguineous in nature, escaped through the wound. Direct smear and culture showed that the fluid contained the streptococcus. The child lived four days and died of peritonitis. Four other cases, two girls and two boys, with syndromes the exact counterpart of the one detailed, have come under my observation this season. We are not alone in our trouble in dealing with this so-called abdominal influenza. McWhorter reports five cases operated upon for abdominal conditions resulting from influenza.

5. The nervous type is the least frequent, but a very serious variety. It may involve the central or peripheral nervous system. The symptoms present by extreme irritability, headache, pains in the muscles and extremities, stupor, head retraction, and convulsions. The temperature continues high, the pulse rapid and the prognosis is poor. The diarrhea may be so severe and the loss of mineral substance so great that tetany may develop with all its classical signs. One little girl, age six years, who had enjoyed unusual health before she joined the other members of the family by taking influenza, had forty bowel movements in five hours. She became stiff in all her muscle groups, showed carpo-pedal spasm, Chvostek's and Trousseau's sign in a most perfect manner. Other cases have shown multiple neuritis in an unmistakable fashion. One cannot help but feel that many fulminating cases, showing neurological signs, often diagnosed lethargic encephalitis, are in reality nervous manifestations of influenza.

One cannot help but be impressed during each epidemic of influenza with certain groups of clinical symptoms repeating them-

selves over and over. For example, it is noted, a child has a temperature for a day or two, a running nose, with a thin acrid discharge, loses its appetite and on physical examination shows merely a red throat and a mild injection of the ear drums. The face may be red with a circumoral pallor. A day or two later, with a persistence of the red throat and the otitis media, a cough develops. As a rule the temperature fluctuates between subnormal and 104. When the temperature is low the child will brighten up and feel real well, wishing to play and leave his bed. While the fever is high he looks and acts real sick. Some of the most severe illnesses result when the parents concede to the child's wishes and permit it to get up and go outside and become chilled. Under such conditions one may expect a serious illness to follow. The same holds true if the child is chilled during a relapse. The safest plan is to keep the patient confined to bed and warm until the temperature has remained normal for forty-eight hours.

One will often find a pulmonary congestion with localized dullness, but the picture clinically, and on physical examination, is not that of bronchopneumonia. To make it more puzzling, these signs and symptoms are both migratory and transitory, new areas of the lungs being involved in turn for three or four days. Some cases, however, show the tendency for weeks. If the illness is at all severe, a few casts, red blood cells, and albumin will be found in the urine. Acetone is present and the reaction strongly acid. Usual cultural means show the hemolytic streptococcus or the pneumococcus and but rarely the Pfeiffer bacillus from the nose and throat or ear discharges. Plugs of mucus coughed from the larynx, however, frequently show this organism.

Cervical adenitis, a common complication of influenza, particularly this season, is accompanied by high fever. These glands seldom go on to suppuration. Acute hemorrhagic nephritis frequently develops a few days after the glands have enlarged. Incision into the glands with adequate drainage, the nephritis seems to disappear like magic even though no pus is obtained.

Not a few patients with influenza develop a scarlatinal rash, difficult to differentiate from scarlet fever. This is particularly true in the pharyngeal type, with angina, tonsilar exudate and vomiting clouding the picture. The rash has an abrupt appearance, is very transient, often recurs and is always gone in a few hours. It is red in color, irregular in outline, macular in character and elevation cannot be perceived by touch in contradistinction to the true rash of scarlet fever. The rash occurs most distinctly over areas of pressures and where the body is kept warmest, as the back. The face and extremities are not much affected. After its final disappearance there is neither staining nor desquamation. Pasteur's lines at the elbow are not seen and the blanching test is negative.

In the gastro-intestinal type symptoms of acute cholangitis with jaundice has occurred. In this variety, if pain or tenderness is present in the abdomen, it can nearly aways be found in the region of the gall bladder.

Suppurating otitis media, and more protracted illness was found oftener in those whose tonsils were large and cryptic. In fact, complications may be detailed to illustrate how practically any tissue or organ of the body may be affected by the organism causing so-called influenza or by the secondary invaders. Involvement of the middle ear is the most frequent complication. This comes on suddenly with violent pain, where previously there were no symptoms relating to trouble in the ear at all. Sometimes within an hour after examining the ears in the course of a general examination, and pronouncing them normal, there may be deep injection and bulging outward of the drum, accompanied by agonizing pain. One should withhold lancing of the drum for a few hours when possible, because the condition frequently subsides and the opening is not attended by any improvement in the general condition, the condition in the ears being only an incident in the wide spread infection. If the drum ruptures spontaneously, the discharge may be hemorrhagic and the bleeding may be profuse. At the same time epistaxis, so common in influenza, may occur.

Pneumonia is one of the most frequent and serious complications, which is followed by empyema, more frequently perhaps than any other form of pulmonary infection. Just at or after the height of the disease there may be spontaneous collapse of the lung massive in character or in a restricted area.

Influenza seems to be an activator in latent tuberculosis, and the cough which frequently follows, with loss of appetite and weight, may closely simulate intrathoracic tuberculosis infection. This is particularly true if there is infection of the peri-nasal sinuses, a condition that has been brought out so well by Dr. Wasson.

Many cases of acute nephritis may follow closely on the heels of influenza, particularly if the infection localizes in the cervical glands, middle ears, mastoids, nasal sinuses or affects the tonsils or pharynx very acutely.

Primary streptococcic peritonitis accompanies or follows grippe more often than any other disease. Hiccough may be a very serious complication which may be relieved by intubation. Bursitis has been a rather frequent complication this season and troubles one to differentiate it from a tuberculosis joint. The joints may become septic. Four cases of suppuration of the joints, three occurring in the hip and one in the elbow, have been studied. Cultures from these cavities showed pure cultures of the streptococcus in every instance. In one the tension in the hip joint was so great before operation that the bone was dislocated. In another spontaneous fracture occurred at the neck of the femur.

The heart is frequently and permanently damaged by influenzal infection, contrary to the usual belief. Bradycardia is not infrequently present. There are definite electrocardiographic evidences of myocardial damage.

Marked stomatitis, starting in the gums, about one of the posterior teeth, and gradually extending above and below to involve the gums about every tooth, is not uncommon. During this extension most of the mucus membrane of the mouth is invaded with ulcerous patches. The breath is very offensive and the tongue is thickly coated with a greyish white membrane. There may be profound weakness with much sweating, followed by crops of boils.

A word regarding treatment, particularly in the gastro-intestinal type, which has been found effective, may be in order. The child should be kept in bed and warm night and day until the temperature has been normal for forty-eight hours. Nothing should be given by mouth for twelve to twenty-four hours. Food or drink immediately causes the temperature to elevate and increases the abdominal pain. Many times, if nothing is given by mouth for a day, the temperature will subside and a smooth convalescence ensue, while if food or water are given, the child begins to vomit and has a much more miserable time.

With the application of cold, as ice compresses, to the front of the throat for croup or adenitis, there is an extension of the disease into the ears or the lungs. If the child sleeps before an open window, in the nose and throat type, the draft will almost certainly cause an acute otitis. Of all the infectious diseases requiring warmth for their successful treatment, influenza stands first.

Conclusion

1. So-called influenzal infection may be caused by Pfeiffer's bacillus alone or this organism may undergo changes during the process of the disease, to appear in different forms that might be mistaken for other types of bacteria, or it may so alter the tissues that they are very susceptible and receptive to other bacteria.

2. Certain clinical syndromes quite definite may be recognized.

3. Complications are common, severe and frequently fatal. To properly evaluate the symptoms may tax the ability of a physician.

President Hoover—Red Cross

From the Secretariat of the League of Red Cross Societies the congratulations of the National Red Cross Societies were cabled to President Hoover, expressing their "deep satisfaction that so distinguished a friend of humanity . . . should have been entrusted with the direction of the Government of the United States. The Red Cross Societies join in expressing the hope and the conviction that Mr. Hoover's administration may constitute a new step in the development of world-wide co-operation in the spirit of Red Cross."

CARE IN CATHETERIZATION

JAMES A. PHILPOTT, M.D.
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A pyuria occurring as a complication to many operative procedures, also many medical cases, causes one to wonder what part this infection plays in our patients convalescence.

I recognize that many of these patients have latent urinary infections, and an acute exacerbation is, no doubt, due to their acute illness; still there remains a large percentage of patients whose urinary infection has an onset shortly following their acute illness, and in the majority of these cases acute retention, which can only be relieved by catheterization, ushers in their infection. This suggests the question of how can we prevent this complication?

The use of numerous drugs has been advocated, heat—either moist or dry—over the bladder. Elevating the patient to the upright, or having attendants lift the patient out of bed and sitting patient on a commode. With any of these procedures one may succeed, but there still remain many cases whose only relief is through catheterization.

In all cases of retention the question properly comes up of how long shall this retention be allowed to continue before relief is given, I believe the answer should come from either the attending surgeon or, in his absence, the house physician. A careful palpation of the bladder will, in the majority of instances, answer the question; and the interval of time depends upon how much urine there is in the bladder.

We must remember that over-distention has its risks. Also that once an over-distention has occurred the patients chance of voluntary emptying is greatly diminished.

If in order to relieve the retention we have to resort to catheterization then, for the best interests of our patients, certain hospital rules should be made and the same rigidly enforced. The majority of hospitals have no rules governing catheterization. Usually the female patients are cared for by the nurses, the males by either house physicians or orderlies.

My firm conviction is that, in the absence of the attending physician, the house doctor, he being next in authority, should attend to all patients requiring this care.

In catheterizing the female good exposure and light are essential. Wiping off the external meatus with alcohol is far better than a gallon of soapy water on the inner thighs and external genitals.

In catheterizing the male the interne should be taught to hold the catheter with a sterile forceps, and not allow the catheter to come in contact with the fingers.

Any abnormalities, such as small meati or obstruction to the passing of the catheter, blood, or foreign matter in the urine, should result in the immediate notification of the attending surgeon.

Following the emptying of the bladder some solution of the silver salts should be left in the bladder, and, on removal of the catheter, a little should be left in the urethra.

The house doctor should use gentleness in the instrumentation, and should explain to the patient what they are going to do, and thus seek the co-operation of the patient.

The urine of all catheterized patients should be carefully watched for signs of infection, and should infection occur the proper medical measures instituted.

The giving of some urinary antiseptic by mouth is to be commended. In summarizing, I would say:

1. Infection in the urinary tract plays quite an important part in the convalesence of the sick.

2. The seriousness of catheterization is not fully appreciated.

3. Catheterization should always be done by the attending surgeon, or his alternate, the house physician.

4. Each landing should have emergency outfit for catheterization, consisting of a good grade of rubber catheters, sterile lubricator, towels, forceps, and a freshly prepared solu-

tion of some of the silver salts, with a rubber bulb syringe, also a sterile bottle to collect the urine.

5. A careful microscopic examination of the urine is essential.

6. In those cases in which the retention persists, search should be made for some local cause.

7. Careful instrumentation, which means little trauma, is paramount.

URETERAL BLOOD CAST

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Renal hematuria, sufficient to cause coagulation within the ureter, is not rare, but coagulation and subsequent organization of a clot causing complete obstruction over a period of ten days' time is worthy of mention. In this singular case, the history plus observation and repeated urinalysis, leads us to believe that such was the case.

Present Illness: "On August 15, 1928, an Australian woman, 53 years of age, was admitted to the urological service, complaining of severe pain in the left costo vertebral angle and along the course of the left ureter. Fifteen days before admission, she noticed frequent and painful urination accompanied by a sudden and marked hematuria. The bleeding lasted for three days and stopped suddenly, but the frequency and terminal tenesmus continued. For the past five days there has been a constant and severe pain in the left costo vertebral angle and along the left side extending to the labia. Morphine was given for relief by her physician, who made repeated urinalyses which were negative. For four days before admission, she had had a slight temperature accompanied by nausea and vomiting.

Family History: Mother died of cancer at the age of 33. The husband died of pulmonary tuberculosis. One aunt had a goiter. One sister died following child-birth.

Past History: She had measles at the age of 10 and again at the age of 24. Tonsils have always been bad, causing repeated sore throats and on several occasions, quinzy. No other serious illnesses.

Catamenia began at the age of 17, always normal and regular, being interrupted by six normal pregnancies. Menopause began at the age of 51 accompanied by increased nervousness.

Before the onset of this illness, she had been working long hours in the fields. For the last four months has tired easily and has lost about fifteen pounds in weight. The latter she attributes to the heavy labor.

Physical Examination: Shows a poorly-nourished white woman of stated age. She is apparently not in acute pain but is very nervous and irritable. Her skin is moist and red. The scalp is clean. The eyes show no pathology except slightly jaundiced sclerae. The ears and nose are normal. The tongue protrudes in the midline, with a coarse tremor. The teeth are false, but the gums and mucous membranes are clean. The tonsils are enlarged and reddened. Pus can be expressed from the follicles. There is no enlargement of the thyroid and no bruit. The submaxillary glands are enlarged and tender.

Chest: The lungs are clear throughout. The heart is normal in size, the sounds are of fair quality,. No audible murmurs. The pulse is regular, rate 104 to 120. Arteries are soft and easily compressible with a blood pressure of 130/75.

Abdomen: Abdominal aortic pulsation is easily visible. There is tenderness over both kidney regions. Rigidity is notable over the left costo-vertebral angle and along the course of the left ureter. The left rectus is moderately rigid. No masses nor organs felt.

Vaginal examination is negative except for relaxation of the perineum.

Extremities are normal except for a coarse tremor of the hands.

Temperature range 98.6° to 100°.

Laboratory Reports: Urine is entirely negative, both chemically and microscopically, except for acetone 3-plus.

Blood Wassermann is negative.

Blood: Sugar, 126 mgs.; non-protein nitrogen, 53 mgs.; urea, 33 mgs.; Creatinine, 1.6 mgs.; per 100 c. c. of blood. Basal metabolic rate taken before discharge, found to be plus 37.

Cystoscopic Examination: The urethra shows a small caruncle. A No. 24 cystoscope passes easily. The bladder wall is normal in color and outline. The right ureteral orifice is normal, readily admitting a No. 6-F catheter to the pelvis. Protruding from the left ureteral orifice, there is a brownish object similar to and the size of a safety match-head. This cannot be dislodged or broken with a ureteral catheter. When grasped with cystoscopic forceps it is compressible and tough. When withdrawn into the cystoscopic sheath, it does not break, nor can it be easily broken by digital manipulation.

Pathological Report: Gross Examination: "Tissue measures 7 cm. in length, 0.3 and 0.7 cm. in diameter. It is dark brown in color and soft and elastic in consistency."



Microscopic Examination: "Degenerating blood and masses of bacteria with a few clumps of clear, light yellow crystals in the periphery. The mass is penetrated in the center by a few thin-walled capillaries."

Three days following the removal of this organized blood cast from the ureter, the catheter-

ized specimen of urine was microscopically free from blood and pus. Pyelograms were negative except for the ordinary changes expected following an acute hydronephrosis and hydroureter. The cause of the hemorrhage is not definitely known but is believed by the author to have followed a bacterial embolus. Tumor has been definitely ruled out by subsequent study, and until the present date, the patient has remained well, gaining ten pounds in weight.

X-RAY REPORTS

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There should be a standardization of x-ray reports. At present roentgenologists will describe the findings on a given film in very different terms, so that it is often necessary for the referring physician to be familiar with the roentgenologist, to know exactly what he means. The solution to this problem lies in the medical schools giving instruction to undergraduates in the description of x-ray films and the writing of x-ray reports in a standard terminology. This means that societies like the American Roentgen Ray Society, the Radiological Society of North America, and the Radiology Section of the American Medical Association shall first determine upon a standard nomenclature and officially adopt it. Recommendations along this line have already been made, so that considerable progress can be expected during the next few years.

There still remains a great deal of misunderstanding on the part of many patients and not a few physicians as to the status of x-ray reports and films.* A patient will say, "I paid for those films, why can't I have them?" "What did you find, doctor?" "What, I can't even see the films without my doctor's permission!" This attitude is the result of a mistaken idea on the part of the patient. They do not pay for a certain number of films being made, as they do for pictures in a photograph studio; they pay for an x-ray examination (or perhaps better, a roentgenological consulation.) The films are the property of the laboratory in which they are made, the same as a microscopical slide is the property of the pathological laboratory in which it is made.

Aside from the technical question of ownership of films, is the more important question of the best interests of the patient. Other things being equal, films are best interpreted in the laboratory in which they are made. The exact conditions are known as to the technic used and the circumstances under which the films were made. Often an opinion is given, not alone on what the films record, but on what was observed under the fluoroscope as well.

The x-ray opinion should not be considered as the final and absolute diagnosis, either by the patient or the roentgenologist. It is a matter for the clinician to assemble all the facts in the case, the history, physical findings, to carefully weigh the facts reported from the various laboratories, and then make his diagnosis.

The question, "What do you find, doctor," is often a trying one for the roentgenologist; either he must appear very stupid to the patient, evade the question or enter into a lengthy explanation of why a diagnosis is not immediately given. The patient is intensely interested in what is found, and rightly so, but often he is apprehensive or overly anxious about his condition and in this state it is most important not to worry the patient about details, but that the entire case be summed up, all the facts reviewed in the light of the physical findings and the history, before the patient is told what is the matter with him.

Giving isolated x-ray reports to patients is most unwise; a report may mean something entirely different to the patient than what it actually says. For example, he may read where it says the stomach is low, now if the patient is tall and slender a low stomach is to be expected and a high stomach would be an indication of pathology, but the surgeon may have a hard time to convince the patient that nothing should be done about this low stomach.

The ideal x-ray report should present a

*Ownership of roentgen-ray plates. Journal of A. M. A., October 1st, 1921. Page 1121.

careful, accurate and concise description of the picture seen, noting all variations from the normal and giving an estimate of the activity and importance of the lesion, this to be determined, however, entirely from x-ray signs. The report should be short, so that the referring physician will read it all, but any unusual observations should be noted, whether directly connected with the particular examination or not. In any case where there is a marked discrepancy in findings, in cases of unusual difficulty or where the diagnosis is obscure, it is most desirable for the referring physician and the roentgenologist to discuss the case and go over the entire x-ray findings together.

Films should be kept in permanent files for from five to seven years; films of unusual interest will be kept much longer. When a patient changes physicians, the last physician engaged should have access to the previous x-ray findings. When a patient moves to another city and a physician there wishes information on the patients former condition, he should write to the physician who has been in charge of the case, so that not only the x-ray findings, but all the other data on the case can be sent as well. In rare cases, where a comparison of x-ray films is desirable, they may be sent from one reputable x-ray laboratory to another and returned by mail, not turned over to the patient. It may seem more convenient to give the x-ray report or films to the patient, so it would be with the hospital chart, where blood pressure, urine analysis, Wassermann test, blood examinations, temperature, pulse rate, nurses' notes, physical examination, history, etc., are recorded; all of which would be a great help to the next physician, but class "A" hospitals keep their own records, so also reputable x-ray laboratories keep their own films and records.

Summary

1. There should be a standardization of x-ray reports and terms.

2. X-ray negatives, x-ray prints, and x-ray reports should not be given to the patient.

3. The films should be shown to the patient, only on written request of the physician in charge of the patient and if said physician wants the films explained to the patient, this should be stated in the written request.

4. Reports should be sent only to the referring physician or filed in patients hospital chart.

5. Films and records of fluoroscopic examinations should be carefully kept in the x-ray laboratory, so that the roentgenologist can produce them in support of his written opinion.

6. X-ray examinations should be considered as medical consultations and the ethics of consultations should govern them.

THE ABDUCTION TREATMENT OF FRACTURE OF THE NECK OF THE FEMUR AS DESCRIBED BY ROYAL WHITMAN, M. D.

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A brief Review of the Essential Features of This Method of Treatment

No type of fracture presents a more disabling deformity than the neglected or unsuccessfully treated fracture of the neck of the femur. It is a well-recognized fact that when treated by the older methods, such as the Buck's extension or by traction combined with abduction hip splints, the percentage of satisfactory results is low.

Whitman[1] points out that this fracture is exceptional in several particulars, namely, that in a large proportion of the cases, the patient's physical condition is decidedly unfavorable, and in certain types of this fracture, notably the subcapital type, the capacity for repair is doubtful.

This writer[1] states: "The primary cause, however, of the extraordinarily bad results that have always distinguished this fracture from all others is mechanical. The neck of the femur projects from the shaft, consequently conventional methods of traction and splinting can at best appose the

fragments only in a lateral and, therefore, insecure relation which does not assure the essentials of repair. Conventional practice is based on inadequate mechanics, although ostensibly it is an adaptation to the quality of the patient and to the character of the injury."

The purpose of this paper is to present in as concise form as possible the proper method of treating a case of fracture of the femoral neck according to Whitman's method.

Jones[2], in his monograph on fractures of the neck of the femur, which was published in Colorado Medicine for November, 1925, discusses the Whitman method in detail, taking for example two typical cases in his series of femoral neck fractures. The reader is referred to this communication for a study of the comparative results of the various methods of treatment of fractures of the neck of the femur and for a complete bibliography on this subject.

In discussing the method of treatment originated and advocated by Whitman, the following quotation is taken from his excellent article published in the Annals of Surgery for January, 1925[3].

"Anaesthesia is not absolutely essential, but is of great advantage because complete muscular relaxation is a requisite of complete anatomical abduction, and, if properly administered during the application of the plaster of Paris spica, is free from danger.

"The patient, having been anaesthetized, is placed on a pelvic support with a perineal bar, the shoulders resting on a box of equal height, or a much improved means is by using the Hawley fracture table.

"Two assistants make manual traction on the fully extended limbs, drawing the perineum against the perineal bar—reducing the shortening on the injured side, the surgeon meanwhile lifting the thigh upward if it is below the plane of its fellow. Both limbs being thus extended and under manual traction, that on the injured side being rotated inward, are then abducted to the full limit, on the sound side first, to demonstrate the normal range and to balance the pelvis. When this limit is approached on the injured side, tension on the capsule which surrounds each fragment assures the alignment of the fragments, and by fixing the limb in complete abduction and slight inward rotation, the security of the internal splinting is assured. The spica, properly applied, assures a general, comfortable and secure support free from pressure or constriction."

The plaster of Paris spica is applied extending from the axillary line to the toes, with the knee slightly flexed and the foot at a right angle to the leg.

Conclusions

1. That anatomical reduction of this type of femoral neck fracture is accomplished by the Whitman method of treatment.

2. That this method of treatment minimizes the danger of the occurrence of bedsores, hypostatic pneumonia and renal complications.

3. That this method offers the most favorable outlook in a large percentage of femoral neck fractures, either extra-capsular or intra-capsular.

4. That the Whitman method of treatment offers the most comfortable type of dressing when applied as described by Whitman.

BIBLIOGRAPHY

[1]Whitman, Royal: A Treatise on Orthopaedic Surgery. Edition VIII, Phil., Lea and Febiger, 1927, p. 956.

[2]Jones, Fosdick: Fractures of the Neck of the Femur Treated by the Abduction Method as Described by Whitman. Colorado Medicine, November, 1925.

[3]Whitman, Royal: Annals of Surgery, January, 1925, Vol. LXXXI.

Pan American Congress

The United States Public Health Service has received an invitation through the state department from the Brazilian ambassador to the United States to send representatives to the fourth Pan American Conference on Hygiene, Microbiology and Pathology and the Second Pan American Congress on Tuberculosis. The meetings will be held in Rio de Janeiro on June 30, 1929, on the occasion of the First Centenary of the National Academy of Medicine of Rio de Janeiro.

The National Tuberculosis Association will be unable to send official delegates with expenses paid but through the courtesy of the Surgeon General, H. S. Cumming, arrangements will be made to recommend any persons planning to attend this conference who are approved by the National Tuberculosis Association as its delegates. Such delegates will be given official designation and will travel as representatives of the United States government. No expense will be allowed, however.—Bulletin N. T. A.

EXECUTIVE SECRETARY CHOSEN

Mr. Harvey T. Sethman is 29 years old, was born and raised in Colorado, has a family of three children and resides in Denver. Following a high-school education, Mr. Sethman spent three years at the University of Colorado, enrolled in the liberal arts department. At the end of his third year he was engaged by the Rocky Mountain News of



Denver as a reporter. After some three years of work in that capacity, he obtained a seven months' leave of absence and made a trip around the world as a director for the Frank C. Clark Tours Company of New York, holding a position combining publicity, organization and tourist conducting work. Upon his return he resumed his position with the Rocky Mountain News and has continued with that paper to date, at the present time acting as a political reporter and investigator. His newspaper work has embraced virtually every branch of the editorial department of a newspaper. His acquaintance is wide-spread over Colorado and he is especially conversant with political matters and legislative procedure.

The selection of Mr. Sethman as the new executive secretary of the Colorado State Medical Society was the result of several months of work on the part of the committee in receiving applications and running down the numerous references given. Personal interviews were had by Dr. Childs and Dr. Stephenson with some eight or nine applicants and there were a number of other applications from outside states, all of which had to be considered very carefully and the references investigated by correspondence. Following the desire of President Childs, the executive committee consisting of President Childs, Secretary Stephenson and Treasurer Bortree was augmented considerably. The additional members who were asked to serve on the committee were the following: W. A. Sedwick, Denver; J. J. Waring, Denver; C. F. Kemper, Denver; Wm. Senger, Pueblo; W. A. Jayne, Denver; H. T. Low, Pueblo; W. A. Kickland, Fort Collins; G. H. Curfman, Salida; W. H. Halley, Denver. At the final meeting at which the selection was made, Dr. F. R. Spencer of Boulder and Dr. E. D. Downing of Colorado Springs, were present and were asked to participate in the deliberation. At this meeting the six applicants who had been tentatively selected by the executive committee as the most likely ones were present and were interviewed one at a time by the committee. The selection was then made by vote. The determining factors were educational qualifications, experience in the world, age, moral character, editorial experience, salary required, place of residence.

Mr. Sethman will be ushered into office on the first of June. His duties will be new to him and it will probably take some time for him to adjust himself to the atmosphere of the medical profession and generally to get his bearings. The new secretary will begin to familarize himself with the mechanical, advertising and editorial duties connected with Colorado Medicine, so that by the first of the year at the end of the present editor's term, he will be in a position to take over a great part of the burdensome details of the journal publication.

It is to be remembered that the Society will always have a medical secretary who

with the other members of the executive committee will supervise the work of the executive secretary.

An office is being fitted up for Mr. Sethman in the Metropolitan Building and he will do all his own clerical work, typewriting, etc., until such time as his duties demand the assistance of an office secretary.

All communications with the secretary's office after June 1, 1929, should be addressed to Mr. Harvey T. Sethman, Executive Secretary, Colorado State Medical Society, 466 Metropolitan Building, Denver, Colorado. The executive secretary will have authority to open all mail, so addressed, and such matters as he is not competent to handle on his own authority he will refer to the officers over him for advice.

F. B. STEPHENSON,
Secretary.

NEWS NOTES

On account of absence from Colorado, Dr. S. Fosdick Jones has found it impossible to serve on the committee on medical education and Dr. Maurice Rees has been appointed in his stead as chairman of that committee.

Dr. Robert Downing has left Silverton, Colo., to practice in Durango. Dr. Bykstra is taking Dr. Downing's place in Silverton.

Dr. A. W. Robbins, formerly of Durango, Colo., is now practicing in San Antonio, Texas.

At a recent meeting of the American Surgical Association, held in Cleveland, Dr. Casper F. Hegner was elected to membership. The active membership of this old and important association is limited to one hundred and fifty, and the honor of being chosen as one of its Fellows is enhanced by the long waiting list of emnient surgeons and the few who were chosen.

MEDICAL SOCIETIES

COLORADO OPHTHALMOLOGICAL SOCIETY

January 19, 1929
Dr. Gean Gale, Presiding

Traumatic Chorio-retinitis

Dr. William C. Bane showed Mr. H. M., a machinist, age 22 years. On the evening of December 18, 1928, a hot metal shaving about an inch in diameter struck the left eye. It produced a skin wound through the lower canaliculus and extended downward and outward for ¾ths of an inch; also a small, triangular cut in the left cornea near the margin in the lower nasal quadrant, and a superficial cut in the conjunctiva, downward and inward from the corneal wound. The corneal cut did not enter the anterior chamber. The x-ray was negative. The vision of the right eye was 5/6ths and of the left eye, fingers at eighteen inches. There was a manifest edematous disturbance of the retina in the lower nasal quadrant of the fundus and the viterous was slightly hazy.

On December 22, the viterous was still hazy, permitting only an indistinct view of the fundus, V-5/60.

On December 28, much of the retinal edema had disappeared and some small pigment deposits were seen in the retina at the macular area and below the optic nerve, V-5/60.

By January 29, the vision was quite clear and the optic nerve appeared quite normal. The pigment deposits were seen over an increased area, and were more sharply defined than when first noticed. The vision was still 5/60 and not improved by lenses.

Intra-ocular Foreign Body

Dr. James M. Shields brought Mr. F. G., age 30 years. While hammering on a tank November 20, 1928, something struck his left eye. He was seen immediately. About 4 m. m. to the temporal side of the limbus of left eye was a vertical, incised wound through which a piece of steel had passed into the vitreous. The foreign body was localized by x-ray and removed by hand magnet through the wound of entrance without any difficulty. The tip of the magnet was introduced barely into the lips of the scleral wound. The scleral wound was closed by a single suture, and a conjunctival flap was brought over it. Atropin was instilled and the eye covered. The patient was sent to the hospital and kept in bed for one week. He was given three injections of foreign protein to combat infection. The eye quieted down rapidly and completely with no sign of infection, but it has shown a complete detachment of the retina with complete loss of vision except for barest light perception in the extreme temporal field.

Traumatic Cataract

Dr. Edw. R. Neeper showed Mr. F. C., age 36 years, whose physical examination revealed no evidence of disease. The vision O. D. was 10/200 and O. S. 20/15. The history revealed that while "stroking," on sheet zinc ten days ago, he felt something strike his right eye. A fellow workman, and also a physician a few minutes later thought there was an abrasion just above the corneal apex. He was first examined six days after injured eye. There was no staining and no corneal or other scar. There was little or no inflammation. No injury of the anterior capsule was visible. The lens was rather uniformly cataractus. The x-ray examination was negative.

Further questioning revealed that this eye was injured by a thrown rock in 1906, but was normal within a few days. Army entrance examination in 1917 showed normal vision. When mustered out at Camp Funston in 1919 the eyes were negative. He recalled shooting a shotgun successfully Oct. 14, 1928, from the right shoulder, and followed his custom of closing the left eye. He noted nothing wrong with the vision of the right eye at this time.

He thought the vision of both eyes equal, prior to ten days ago. Could such an appearing cataract follow within six days after trauma? Is compensation properly due him?

Based Cell Epithelioma. (Two Cases)

Dr. Ralph W. Danielson (invitation) showed a woman, age 48 years, who came to the University of Colorado clinic on Aug. 23, 1928. On examina-

tion a lobular mass was seen in the region of upper canaliculus of left eye, which was firm to the touch. Two or three yellowish areas seen through the red surface of the tumor mass made one suspect leptothrix.

On Sept. 6, 1928, the tumor was incised, but the tumor mass was found more solid and less systic than previously suspected.

On September 7, the tumor mass was removed and frozen sections showed a basal cell epithelioma. Treatment of 15 milligrams of radium was given (on September 16) by direct contact, unscreened for one hour. This was repeated on October 15, except that the wound was protected by rubber dam. The course of healing has been uneventful except for the redness and swelling subsequent to each radium application. There is no evidence of recurrence nor metastases.

Dr. William H. Crisp again showed the man who had been brought before the meeting of the society on March 17, 1928, on account of a basal cell epithelioma of the lower eyelid. The case was shown to illustrate the late results of radium in these cases.

(The tumor appeared clinically as a ring-shaped, hard mass with a deeply depressed center which was intermittently covered by a crust formed from the discharges.) The tumor had been exposed to twenty milligram hours of radium with lead protection for the eyeball and adjacent tissues. Microscopic study of excised tissue had shown a basal-cell epithelioma with almost no mitoses.

At the present showing of the patient, the former position of the tumor was represented by a scarcely noticeable scar, level with the surrounding parts. The eyelashes in the corresponding part of the eyelid had been permanently lost, and there was a slight chronic congestion of the bulbar conjunctiva in this direction. It was noteworthy that the shrinking of the tumor and flattening of the resulting scar had gone on for at least two months after the single exposure to radium. The question therefore arose whether a mistake was not frequently made in giving several doses of radium at short intervals.

Renal-retinitis

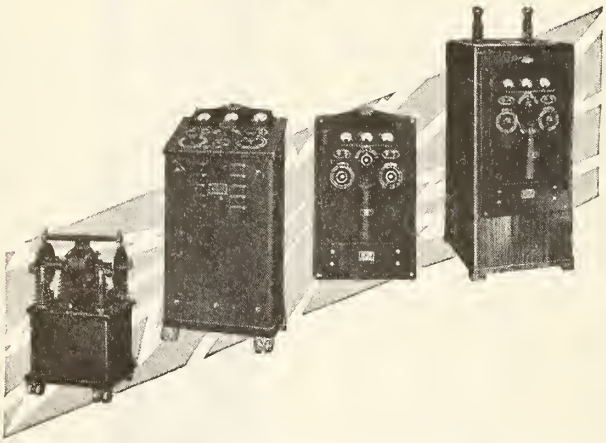
Dr. Donald H. O'Rourke presented Miss E. F., age 40 years. She complained of failing vision in both eyes during a period of three weeks. The left eye more noticeably than the right. For the past few years she has felt tired out and has been subject to much dizziness and vertigo. It was interesting to note in this connection that although her health has been poor for many years, she had been feeling much better the past three years. The vision with her correcting lenses O. D. was 0.8 and O. S. 0.1. The right fundus showed all the evidences of retinal arterio-sclerosis of a severe degree. The left fundus in addition to the sclerosed vessels with kinking at the crossings, tortousity, differences in calibre and narrowed lumen evidenced several superficial and deep retinal hemorrhages, principally in relation to the superior temporal vein. A large, irregular-shaped patch of varicose nerve fivers extended from the disc down and temporalward.

The internist to whom the patient was referred reported chronic interstitial nephritis, systolic blood pressure 240, diastolic blood pressure 145.

Lymph Angioma of the Conjunctiva

Dr. William C. Finnoff exhibited L. L. male, age 12 years. About nine years ago noticed slight swelling of the conjunctive of each eye. The condition has gradually progressed and at the present time the whole bulbar conjunctiva of the right eye below the level of the upper margin of the cornea shows a marked edematous swelling that

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is due to engorgement of enlarged lymph vessels. The tortuous and dilated lymph vessels can be readily seen with the corneal microscope and with the naked eye. A similar condition is present in the left eye, but is not so advanced. The vision is unaffected.

Quiescent Tuberculous Keratitis and Iritis

Dr. William T. Brinton brought Mrs. S., age 31 years. She gave no previous history of any tuberculosis preceding the present eye condtion. Nine years ago she had a septic infection at childbirth, followed by many months of marked debility. Seven years ago an iritis developed in the left eye. Two or three months afterwards the same condition developed in the right eye. The cornea was not involved for several months afterward, when the left cornea became very opaque and soon afterward the right cornea was also involved.

There were periods of two or three months when the inflammatory condition was quiescent only to be followed by a period of exacerbation. Two years ago the corneal opacity reached its maximum, at which time she could just distinguish the turning on of electric lights. Eighteen months ago at the height of one of these inflammatory periods daily treatments with the thermophore were instituted and in the course of two or three weeks all inflammation had subsided. There has been no recurrence since that time, although the thermophore has been used quite frequently in an effort to further clear the corneal opacities. The vision has improved in the right eye so that the patient is now able to see the larger headlines and does her housework. The slit lamp shows a marked vascular interstitial keratitis with posterior synechiae and pupillary exudates in the left eye and a less dense vascular interstitial condition in the right eye with a rather dense calcareous opacity directly in front of the pupil which seriously interferes with vision. It also presents a few posterior synechise but a fairly clear anterior capsule.

DONALD H. O'ROURKE,
Secretary.

TUNING IN

Time-Saving Method for Food Habits Studies Developed by Home Economist

A new short-cut method for calculating the nutritive value of diets has been developed by Dr. Edith Hawley of the bureau of home economics. A forty per cent saving in time can be effected in studies of food habits by this method when a large number of family records of food consumption must be analyzed.

This contribution by Dr. Hawley to the methodology of dietary studies is a continuation of the research begun in the department of agriculture by Dr. W. O. Atwater nearly 50 years ago. Since then investigators for state, federal and private agencies have collected data on the food consumed by more than 75,000 families in the United States. Only about 1,500 of these records have been analyzed for the nutritive value and cost of food for the individual family. From the majority of these records, analysis has not gone beyond cost or quantity of foodstuffs consumed for the families as a group. Consequently, the detailed facts on food habits now in demand by food producers and economists are not available. The chief drawback to complete analysis of food

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EDITORIAL NOTES AND COMMENT

THE PRECLINICAL PHASE OF DISEASE

This is an expression, the validity of which is undoubtedly open to question, yet who of us is there that has not over and over again, had the feeling, that if it had only been possible to have diagnosed the particular case in hand sufficiently early, the treatment would have been a relatively simple matter. Take, for instance, cancer; we all know that there was a time in its course when these aberrant cells were just departing from their harmless course and if it were only possible to recognize that departure, how simple would be their annihilation. Fortunately we do know the sort of things from which cancer—at least the external varieties—originate, and much is being accomplished by removing these things; but if we only had some method of recognizing the internal ones as early, the cancer problem would be almost solved.

The great reduction in the deaths from tuberculosis (from 217 per 100,000, in the latter part of the past century, to the present rate of 70) has been made possible principally by the recognition of the disease in a curable stage; yet, who does not feel that eventually we will move this diagnostic point back much further and be able to recognize it at a time when it will be almost certainly curable?

As we go over the history of our cases carefully, we are so often impressed by the more or less insidious signs of departure from the normal before the events which were supposed to mark its beginning, were made manifest. May we look forward to the time when this real departure will be recognized?

In the case of diabetes, an important step forward has already been made. A great many normal individuals have been examined and a fairly definite normal standard for blood sugar established. Frederick Allen and his associates examined the blood of large numbers of the members of the families of their diabetic patients, and found the sugar content was quite appreciably higher than in the normal. Since the predisposing factors in the causation of this disease are fairly well known, it was a relatively simple matter to so guard these that already a quite appreciable reduction in the expected morbidity has occurred.

The part played by the adolescent thyroid in the production of true goiter has been fairly well established and, by protecting it from further strain, much has been done and much more, perhaps, will be done to anticipate.

In the case of the cardiovascular or renal diseases, the problem is more intricate; yet, with blood-pressure readings, functional tests of kidney capacity, studies in blood chemistry and in metabolism, we are gradually approaching an understanding of the early changes which ultimately lead to the irreparably damaged state of the tissues which is commonly recognized as arteriosclerosis.

Even in the acute infectious diseases there must be a "battle royal" going on between the host and the invader for some time before they are now recognized, and there must be some "smoke of battle" and the

time will come when we will be able to recognize it.

Whether these things are to be brought about through studies in cellular pathology or by biochemic means, is uncertain, though probably mostly by the latter.

Does it not appeal to one that our standing army of 300,000 could almost justify its existence by furnishing an opportunity to establish real normal standards and the recognition of the departure therefrom? Suppose, for instance, that each man was examined by every means at our command, every two or three months, then, when a disease develops—especially one of those of a more chronic nature and of insidious onset—let one go back into his record and study even the slight departure from the normal, that may be shown in various ways. Eventually enough data would probably be gotten that a "preclinical picture" could be built up. The natural next step would be that; when these forerunners were seen, preventive steps would be taken that would, in most instances, forestall the disease.

This is, of course, utopian, though perhaps worth dreaming about. O. M. G.

PREVENTABLE INDIGESTION

Of the many causes of indigestion some, at least, are quite easily preventable. Hippocrates warned against the effects of heavy muscular work when he wrote: "Let labor go before meat." Galen insisted on the same order as a means of preserving health. A certain Thomas Cogan, writing for the students of Oxford University in the sixteenth century, lamented that in those days "Schollers never exercise but forthwith after meate, eyther leaping, or running, or playing at the ball, or coyting, or such like." His lamentations were justified, even though his warning that "by that meanes the meate is conveied into all the members before it bee concocted or boyled sufficiently" may have been a little beside the mark. A professor of anatomy at the sister University of Cambridge, placed the hippocratic doctrine on a surer foundation by a little experiment which Adair described in his essay on diet more than a hundred years ago:

"Dr. Harwood . . . took two pointers who were equally hungry, and fed them equally well,—**one** he suffered the promptings of instinct, curled himself around until he was comfortable, and went to sleep, as animals generally do after eating—the **other** was kept for about two hours in constant exercise. On his return home the two dogs were killed. In the stomach of the **one** who had been quiet and asleep, all the food was digested, in the stomach of the **other**, that process was hardly begun."

Only last year an American physiologist[1] carried the observation a step farther, using dogs that had been furnished with an accessory Pavlov gastric pouch. He found that the secretion of gastric juice is hindered while exercise is going on. There is good evidence also that gastric secretion is inhibited by fatigue and that the nose-bag is as unwise on a man as on a horse immediately after a long journey. Let labor then go before meat—some little time before.

Another cause of indigestion which is probably common and is frequently preventable is very ably discussed in a recent article by Walter C. Alvarez[2] of the Mayo Clinic. His attention was drawn to the effect of emotion upon digestion early in his career when he was helping his father in his practice. A girl had fallen out of a mango tree early in the morning. It was nearly noon before the rural buggy and its pain-racked passenger had reached the city. With the first few whiffs of anaesthetic she vomited; and behold the mangoes, eaten hours before in the tree, still untouched by digestion, with the marks of her teeth clearly chiseled on the surface! Many other examples are cited to prove that emotions such as pain, fear and rage may not only inhibit the movements but also dry up the secretions of the alimentary canal. Moreover a certain amount of attention to the joyful experience of eating, an expectation of delight, may be a great help

[1]Crandall, L. A.: The Effect of Physical Exercise on the Gastric Secretion, Am. J. Physiol. 84: 48 (Feb.), 1928.

[2]Alvarez, Walter C.: Ways in which Emotion Can Affect the Digestive Tract, Journ. A. M. A., 92:1231 (April 13), 1929.

to the stimulation of appetite juice, without which digestion may be seriously impaired. The harassed business man and even the harassed physician may be advised to cast care aside when they draw their chairs to the table and

> Let good digestion wait on appetite
> And health on both.

Small children suffer violent emotions that they cannot readily control. Their parents should feed them only when they are happy and should be careful that the happiness is not dissipated by over-attention to the conventional standards of polite "grown-ups."

J. R. E.

MY RECENT VISIT TO THE SURGICAL CLINICS OF EUROPE

W. W. REED, M.D.,
BOULDER, COLORADO

I have assumed that a description of my impressions generally would be of more interest to you than an attempt to explain or go into any particular part or phase of the subjects of medicine or surgery seen and heard. Obviously, in reporting a trip of this kind one can best record impressions and observations and mention points of interest gained here and there.

Along with almost every other American medical man I have long cherished the hope of some day seeing and hearing with my own eyes and ears the great men in the centuries old countries across the waters, and of learning first hand of their methods and ideas regarding many of our great medical and surgical problems.

The opportunity came with the organization of the 1928 Tour of the Foreign Assemblies Clinics of the Interstate Graduate Medical Association of America—an opportunity to visit practically every large clinic of continental Europe, in a short time, spending about six weeks on the tour.

We left New York on the 16th of June, the most favorable time, we were told, to cross the Atlantic, and we had a very pleasant and smooth passage.

In so short a time as six weeks, naturally, an intensive study of any one or more subjects would have been impossible, but we did have ample time for a comprehensive survey, with a stay of four to six days in each of the large clinics, giving us an opportunity to get a good idea of the work being done, and to pick up many valuable and practical points.

Our clinics had all been arranged in advance for us and time and space reserved for our definite stay in each city, somewhat as the American College of Surgeons' clinics are conducted. In this way much could be included by the best men in each individual place in a short space of time.

Our party consisted of one hundred doctors, widely distributed from different parts of the United States and Canada, almost every state being represented, mostly surgeons, some gynecologists and obstetricians, a few eye, ear, nose and throat men, and, with few exceptions, crossing the water for the first time.

On ship board every afternoon at three, meetings were held and many good papers were read and discussed, lantern slide lectures delivered and special subjects presented in an interesting and instructive way by various capable members of the group on board.

Dr. William B. Peck, the very efficient managing director of the Interstate Assembly, accompanied us and gave careful personal supervision to all of the medical work of the party on ship board and throughout Europe, managing details and perfecting arrangements of programs. The travel department of the American Express had entire charge of all of our movements from place to place, transportation, baggage, sightseeing tours, etc. A manager for this work and a French speaking and a German speaking interpreter were constantly at hand so that our program of progress was also worked out for us throughout the trip.

We landed at the French port of Cherbourg and proceeded at once to Paris where our first clinics were to be held. Our entire itinerary included clinics at Paris,

Berne, Zurich, Munich, Vienna, Budapest, Prague and Berlin, our party being the guests of the Universities in each of these clinical centers. Practically all the large teaching hospitals of Europe are owned and controlled by the governments or provinces in which they are located. These universities are many of them centuries old; in fact, throughout Europe, time is measured in centuries, not in years, as with us. "In the thirteenth or fourteenth century" is a common expression over there.

For example: The University of Munich was established in 1459, over four hundred years ago, by the Royal Bavarian, Ludwig Maxmillien, the Imperial Royal University of Vienna in 1365, five hundred and sixty-three years ago, and the old University of Prague in 1348, five hundred and eighty years ago. All of this means, of course, that successive generations of great medical men have come and gone, but that each in turn has handed down his greatness, his inspirations and achievements to the next generation. This is exemplified at Berne in the successors of the great Swiss, Dr. Kocher, in his goiter work. In Vienna the successors of Billroth are carrying on his work splendidly, and take great pride in so doing. The pathology of Vienna has, no doubt, gained its high standing by reason of its great pathologists. The long line of these eminent and widely renowned men, notably Richitansky, to whom the present pathologists attribute much of their inspiration, is known to all.

Through the influence of these men a law has been secured in Vienna whereby all patients who have died in the hospitals must be autopsied and this department of the University has an enormous amount of material, three thousand autopsies a year, often six or more cases a day. I have always heard that Vienna is the best place in the world to study pathology, and I believe it to be true.

My chief attention was given to general surgery and its organization and technique. In going about one is impressed with the thoroughness with which the actual technique of surgery has become standardized, that the variation of the standard operations is so slight, that no matter where it is done, it is practically and essentially the same. In Europe this is notably true, that in actual technique, one gets little of value over any good surgical clinic in America. The operators in general are not so quick and dextrous as American operators are.

Outstanding exceptions to this, however, are Dr. de Martel of Paris, Clairmont of Zurich and Sauerbruch of Berlin. These men are at present conceded to be the masters of finished surgical technique throughout all of Europe. Their operations are works of art.

Furthermore, no matter where you go, or what clinic you are in, there is a sameness in the surgery done. Stomach resections, operations on gall bladders, breasts, goiters, kidneys and prostates form the bulk of the work everywhere.

Special places in Europe, however, exist, where a special kind of surgery has special advantages. For goiter study one should go to Berne, for plastic surgery to Lexner in Zurich, for chest surgery and thorocoplasty to Sauerbruch in Berlin, for stomach surgery and brain surgery to Vienna, for surgery of calculi, vesical and renal, to Hungary, and for any kind of pathology to Vienna.

Paris

Perhaps the most unusual and interesting surgical figure in all Europe at present is Professor Henri Hartman of the Hotel Dieu, Paris, who gave our first surgical clinic. He is between eighty and ninety years of age, operates and directs his clinics daily, is keen, active and alert and has a hand as steady as a man of fifty. His hair is as white as snow, as is his long beard, quite in striking contrast to the other great European surgeons, who are almost universally clean shaven with heads clipped short of hair. Professor Hartman did as his first operation a resection of a high carcinoma of the rectum and sigmoid, ten inches being removed under spinal anesthesia, demonstrating the advantages and possibility of complete resection from below by using an extensive T incision, thus avoiding the troublesome colostomy: a most striking and skillful demonstration. He also did several other operations: stomach resections for cancer, gastro-

enterostomy for peptic ulcer, and a Polys resection for duodenal ulcer, obstructing the pylorus. The Hotel Dieu, where Professor Hartman does his work, is an old, historic structure dating back to the days of the French Revolution, and is soon to be pulled down and rebuilt further out of the city into a modern, up-to-date, new hospital.

Clinics were also held at Cochin Hospital by Professor Widal, at Farnier and Borcee hospitals by Professor Delbet, Dr. Armand de Lille, and others.

Dr. Calmette of the Pasteur Institute, who at present is working with the B. C. G. vaccine, delivered an address on his work in the Preventive Vaccination of Children against Tuberculosis. To me the most interesting clinic in Paris was that of Dr. de Martel, the surgical wizard of France. His speed and wonderful technique and his splendid organization of assistants commands universal admiration. He did for us appendectomies, hysterectomies, cholecystectomies, stomach resections, breast amputations, anastomoses of gall bladder to stomach in his characteristic manner. His personality is pleasing and our entire party fell for him at once, personally and professionally. His personal attention was devoted to our party during our stay in Paris.

Other interesting incidents of our stay in Paris were a reception and banquet at Rothchild's Foundation our first evening; a visit to and inspection of the School of Medicine of the University of Paris—conduct of the dean; a visit to the Museum of Anatomy and Pathology of the Paris Academy of Medicine; a visit to the Pasteur Institute under conduct of Professor Calmette, including a visit to the tomb of Pasteur, to the laboratories where the rabies work is done and the Contagious Diseases Hospital; a visit to the American Hospital of Paris; and a reception and visit of hospital inspection, under the conduct of Dr. Gras of San Francisco.

Berne

In Berne we were the guests of the University of Switzerland where Professor Sahli, the dean of the School of Medicine, and Dr. De Quervain had arranged a very fine clinical program, chiefly on goiter and cretinism. Thirty cretins were assembled, illustrating the various phases and stages of the disease and literally hundreds of goiter cases. There is no place in the universe where there are so many, I am sure, and no place where one interested in goiter can find its study so interesting. The goiters of Switzerland, however, are not toxic. They very seldom have the type there that we most have to deal with here; viz., the toxic, rapidly damaging type. Theirs are practically all large tumors, non-toxic and almost universally operable.

Cretins are also very numerous in Switzerland and the Government has several large farms for them. There is one near Berne where six hundred cretins are kept. They do some work and are kept busy under a director, who adapts their work to their lowered mentality, and on this farm they live out their lives in some usefulness. No treatment is of any avail for a cretin after the child passes three years of age. One case was shown of a cretin woman, who had been in a hospital for thirty years.

The goiter clinics and many operations were conducted by Professor DeQuervain and his staff. Dr. DeQuervain is a man of advanced years and the direct successor of the great Kocher. This, combined with the fact of his living in the greatest goiter district of the world, has placed him in the position of having greater knowledge and experience in goiter than any living man. He prepares his patients by administering iodine, uses local anesthesia entirely, makes a collar incision, ligates the poles first and enucleates from behind forward, leaves a small amount of gland tissue, uses skin clips in closure and places the patient in a sitting posture, with a figure 8 dressing and dribble bib fastened to chin. All imaginable stages, ages, sizes and varieties of goiter were shown and operated on by Professor DeQuervain.

The largest collection of goiter specimens and the most varied in the world is the collection in the pathological laboratory in the University of Berne. A specimen is shown of one in a new born babe, in which at birth, tracheotomy was necessary, because of a circular constriction and stenosis which pre-

vented respiration and resuscitation. The autopsy specimen showed the thyroid gland completely encircling the trachea.

Carcinoma, sarcoma and all imaginable anomalies are shown. Iodine is given very freely to the population in Switzerland as practically all have goiter and there are no normal thyroids in Switzerland. Pregnant women are given iodine ante-partum uniformly.

Other fine clinics were also given in Berne. Professor Guggisberg in obstetrics and gynecology gave a splendid operative and dry clinic, emphasizing indications and contra-indications for X-ray in the treatments of myomas and carcinomas. Many hysterectomies were done in his clinic, the "Wertheim" for carcinoma, usually subtotal operation for myomas.

Before leaving Berne a fine banquet and reception were given our party and speeches were made by the President of the Republic, the American consul and the noted Dr. Sahli.

We finished our clinics in Berne, June 30th and were to celebrate July 4th in truly American style, with representatives of the Swiss Republic, in Luzerne, so we spent the intervening time sight-seeing in and around Interlaken, the Jungfrau, Mount Glazier, Lake Luzerne, Lake Constance and other beautiful lakes in the Swiss Alpine region. On the eve of July 4th a great celebration and banquet was given in a tourist hotel and resort on a mountain top near Luzerne: Mount Doldar. All of the Americans in the vicinity and the American Confederacy of Women of Switzerland, together with the American consul, arranged the affair. Beautiful Swiss music, a reception, patriotic speeches, comparing and contrasting the smallest, but oldest republic in the world, with the richest and greatest, the United States of America, were the chief features of the occasion.

Zurich

In Zurich, the largest city of Switzerland, and in the largest University and Hospitals, we resumed our clinics the following day. The leading spirit in Zurich, also the Dean of the School of Medicine, is Professor Paul Clairmont. His surgery is of the superior type and we learned much from him and his work. Struma and Strumectomies are here again, as at Berne, the leading topic of interest and many goiter operations were done by Professor Clairmont and his staff. A splenectomy, breast amputation for carcinoma and many other interesting operations were done. His thoroughness and painstaking care in controlling bleeding, double ligating and cutting between, his method of using few hemostats, are probably the most noteworthy characteristics of his technique, coupled with his speedy and dextrous work. Clairmont's thorocoplasties are of the extra pleural, paravertebral type, done often by him for tuberculosis and empyemas. His operations are perhaps second in Europe to those of Sauerbruch of Berlin. He resects up to 6 inches of the ribs, uses local anaesthetia, with the patient in the upright position.

Gall stones are said to show under the x-rays, without the dye, in 50 per cent of the cases in his clinic, due to the increased amount of calcium in this particular vicinity around Zurich.

Munich

At Munich, in the south of Germany, we had the pleasure of seeing the work of the great plastic surgeon, Professor Lexner. His methods of lifting face muscles, smoothing out wrinkles around the nose, lifting the drooping corners of the mouth, rounding and smoothing cheeks, are fascinating to the observer. His genius in his work is almost uncanny to behold. He, himself, is a gruff, blustering, ugly old German, yet doing such delicate and really artistic work. In addition to some of his beauty work on the face he did for us a bone transplant from the tibia to fill a large bone gap in a lower jaw, resulting from an extensive war injury to the face. The finished result was most spectacular. In another case of cartilage transplant a piece of pronged cartilage from the costal arch was used to restore and overcome the horrible disfigurement due to the loss of the malar eminence and bone on the face. Many cases of plastics on burns of the face, lips, neck and breasts, where extensive and disfiguring scars had resulted, were

corrected in his clinics during our stay. His method of operating for extensive oesophageal stricture from corrosives is to transplant and use as a tube 10 or 12 inches of the upper jejunum, leaving its blood supply through its attached mesentery, and tunneling a channel subcutaneously above the stricture and to the stomach below. Several cured cases were shown, where swallowing of bread, potatoes and all kinds of food was perfect.

Professor Doderlein, the great Munich obstetrician and gynecologist, also has a famous clinic and showed at our visit three Caesarean sections, classic, extra peritoneal and vaginal varieties, several eclampsias, hysterectomies for myomas, etc. Moving picture films, showing normal labor and all varieties and stages of placenta previa have been made in his clinics and were shown for us. Lobelien is extensively used by him and he recommends it very highly in the resuscitation of asphyxiated infants in difficult cases.

Vienna

Vienna came next and the old "Allegemeines Krankenhaus," practically unchanged, I understand, well known everywhere, was the scene of our activities and clinics there.

We were told that the old prestige and popular favor of Vienna as the best school in Europe for post-graduate study had now been fully restored. Since the war Berlin was pulling hard for favor and was running a close second to Vienna. The winning of Professor Sauerbruch for Berlin is certainly a strong drawing card for them in surgery. The old "Allegemeines Krankenhaus," however, is hard hit by the war, and its extreme old age and great need of many modern improvements and supplies, are evident. It still has its great men, its great traditions in endless, unlimited amount of clinical material, abundantly available for post-graduate and clinical study in all lines of medicine and surgery, and teachers, who are eminently capable of using this wealth of material to the very best advantage.

American doctors have always been partial to Vienna as being the best center for medical study and, I believe, still are, with good reason. The A. M. A. of Vienna, at the time of our visit, seemed to be very busy and many American doctors were registering for the courses.

Our clinics had been arranged chiefly under Professor Eiselberg's and Professor Hochenegg's departments in the old Billroth rooms. They consisted of large numbers of operations by these old masters and included, more or less, the entire gamut of operative surgery, stressing always, as you would surmise in Vienna, the anatomy and pathology involved, with much emphasis on diagnosis and x-rays.

Wax models and mannikins in study and teaching have been developed here to a high state of perfection. The wax model maker and the color artist reproduces in wax every imaginable condition that the surgeons or pathologists encounter in their work. I was greatly interested in watching this work in their studio. The making of medical and surgical moving picture films has also been much more extensively developed throughout Europe than in this country. We saw them in almost every clinic that we attended.

A great deal of brain and spinal cord surgery is done in Vienna and iodized oil is used extensively in diagnosis, the light or ascending oil for brain cavities, ventricles, etc., and the heavy or descending oil for cord tumors, fractures and spinal cord injuries.

Budapest

The general sanitary and hygienic conditions in this part of Europe are not good and it is in this section and further south that most of the terrible epidemics have had their origin, as evidenced at present by the epidemic of dengue. With this in mind, the Rockefeller Foundation, has just built and endowed at Budapest a beautiful and splendidly equipped, half-a-million-dollar hygienic institute. In this institute, physicians who can be induced to take up public health work in Hungary, are given special training and when prepared are given positions at a good salary to do this kind of work. The director, a Hungarian, is a highly competent man, very enthusiastic, and is doing good work.

Professor Tiberius Verebely, head of the Department of Surgery, University of Budapest, gave a fine stomach clinic, performing several operations for ulcers. He resects extensively and claims a mortality of only 34 per cent in a series of 1,000 cases. After ten years 80 per cent of his cases were still symptom free. He attributes good results, lack of recurrences and no marginal ulcer formation, to resection of the acid forming area at operation.

Good clinics were given by Professor Stephen Toth, Department of Gynecology and Obstetrics, on Ectopic Pregnancy, with films and illustrations. Clinics were also given by Professor Bakay on corrosive strictures of the oesophagus. Professor Bakay's method of treating varicose veins was also demonstrated on several cases. He ligates the long saphenus high up in the thigh, doing an open ligation, and this is combined with multiple subcutaneous ligations of the various branches by passing a curved needle, threaded with cat gut, under the veins and tying over a little pad of gauze externally. Satisfactory obliteration, in his experience, results by this simple method.

Two, more or less rival, universities exist in Prague: the German University, where only the German language is used, and the Czecho-Slovakia. Clinics were held in both places for our party.

At both Budapest and Prague much good surgery is being done and both are worth a visit. While there is nothing particularly outstanding in the men or work there, the age and traditions of their universities and hospitals are interesting and the determined spirit of both the nations of Hungary and Czecho-Slovakia to regain and maintain national individuality and distinction is evidenced in their surgeons and their surgical teaching.

They welcomed us most heartily and showed us everything possible of what they are accomplishing under difficulties, chiefly financial. Polya, internationally known for his stomach resection operation, was away on his vacation, so we did not see him.

Professor Jedlek of Prague had kept a patient two weeks in the hospital at his own expense to show us his operation on the spinal cord for syringomyelia. This is something new he is trying to develop. We saw much of the surgery of vesical, renal and all forms of calculi, particularly common to the region of Hungary and Czecho-Slovakia.

Berlin

In Berlin we were the guests of the University of Berlin and our clinics were conducted by Professors Bier and Sauerbruch. Professor Bier has a very pleasing personality and manner. He speaks good English and is very forceful in his teaching. He urges careful operative technique, thorough work, strict asepsis and claims that with this little drainage is required. He uses much avertin anaesthesia in his clinic. His method of treating deep phlegmons, deep infections of arms, legs or body abcesses is by wide incisions, curetting of necrosed tissues and cauterizing by red hot iron and closing up tight without drainage. He did many of these operations and showed others where good results had been obtained by this method. A great volume of operative and surgical material is run through the clinic daily and it is a wonderful place to see general surgery.

Sauerbruch's clinic at Berlin is, of course, known throughout the world, due to his thoracoplasty and lung surgery. He formerly was located at Munich, but was induced to come and accept the Chair of Surgery at Berlin. His new organization there has attained much, we are told, that could not have been accomplished in Munich. His operating room is large, containing three operating tables, with a complete staff for each, and he goes from one to the other as he has finished the main work and so he accomplishes many operations each forenoon. The equipment, discipline and training of his teams, nurses and assistants is remarkable for its completeness. He had collected, for the coming of our party, a great variety of thoracoplasty cases, illustrating steps and stages of his procedure.

He uses gas, avertin and local anaesthesia. The patient is placed in an upright posture. Phrenicotomy preceded always the first, second and third steps performed. The

length of rib removed varies with the case. His actual work and procedures harmonize quite exactly with his book and writings. His work is rapid and all goes like clock work in his operating room. Personally Sauerbruch is pleasant, easy to meet and a "live wire," generally. He was chairman of our Foreign Relations Committee in Berlin and did his best to make our visit to Berlin pleasant and profitable. While Sauerbruch's notable work is thoracoplasty and chest surgery, he also does much general surgery, stomach surgery, etc. A case operated was that of a stomach and transverse colon in the chest cavity through diaphragmatic hernia. Phrenicotomy was first done, then the chest cavity opened and the stomach and colon returned to the abdomen.

He disagrees with the Mayos in thinking that ulcers of the stomach produce cancer of the stomach, he says "Never! they are two independent conditions. There is no relationship between ulcer and cancer. Once an ulcer, always an ulcer." He disapproves of resection and gastro-enterostomies for ulcer. If stenosis or extensive trouble exist then he resects.

Our stay in and trip through Germany were not interspersed by banquets and receptions, as in the other countries visited, yet we were treated well there and every professional courtesy and assistance were given, and their work was freely and pleasantly opened up to us. They really want American doctors and surgeons to come to their clinics and whatever feeling there is remaining, if any, is kept well in the background.

Berlin was our last clinical assembly and after some sightseeing at Pottsdam, Dresden, Cologne, Brussels and Antwerp we set sail for America, feeling that the tour, from a medical and surgical standpoint, even though short, had been very much worth our while.

The opportunity of seeing such world renowned men, such masters in the fields of surgery and medicine as Hartman, De Martel, Calmette, Widal, De Quervain, Sahli, Lexner, Clairmont, Bier and Sauerbruch, in their own hospitals, doing their famous life work, seeing their operations and activities at first hand, is a privilege and an inspiration that one feels is, and should be, an event in the life of any American doctor.

A SURVEY OF BOTULISM IN COLORADO WITH A DISCUSSION OF RECENT OUTBREAKS*

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There were three widely separated outbreaks of botulism in Colorado during 1928 and as these include the first human cases since the spectacular disaster of 1924, we may suspect that any lessons learned by the public at that time regarding the simple precautions necessary to prevent this disease are beginning to be forgotten. A desire to renew emphasis upon the danger of eating spoiled food, and a belief that all cases of this destructive form of food poisoning should be recorded in the medical literature form the motives for this report. The investigation of these recent outbreaks has also brought to light several unrecorded ones. We have arranged the essential details in Table I.

Outbreak in Romley

The first known outbreak of botulism in Colorado occurred in October, 1912, at Romley in Chaffee county. Seven people became ill and five died following a meal at which commercially canned spinach and beans were eaten. It was thought at the time that some poisonous weed had become mixed with the spinach, but since spinach from another can of the same lot fed to a rabbit proved harmless, this hypothesis was not sustained. There is no record of further laboratory tests but some of the suspected foods thrown upon a garbage dump presumably caused the death of five burros with symptoms of muscular weakness similar to those in hu-

Table I

BOTULISM IN COLORADO

Reference	Place	Date	Humans		Animals		Suspected Source	Laboratory Proof		Type
			Ill	Died	Ill	Died		Toxin	Bacilli	
Curfman (1)	Romley	Oct. 1912	7	5		5 burros	C.c.beans C.c. spinach.			
Here reported	Rocky Ford	1913	5	5			H.c.beans			
Curfman (1)	Basalt	1915	5	5			C. beans			
Geiger, Dickson and Meyer (2)	Lyons	Nov. 1920				25 fowls [A]	H.c.beans		+	A
Geiger, Dickson and Meyer (2)	Pueblo	Apr. 1921	5	3			H.c.beets		*	
Newsom (3) Sackett (4)	Fort Collins	May 1922				78 fowls	H.c.corn	+	+	A
Naugle (Love) (5)	Pueblo	1923	1	1	? fowls	? fowls	H.c.beans			
Naugle (Love) (5)	Gunnison	1923	3	3						
Naugle (5) Stricker and Geiger (6)	Sterling	Feb. 1924	7	5			H.m. sausage H.c.beans	— + 13 days	+ + 13 [B] days	A
Here reported	Longmont	May 1925	5	1			H.c.beans C.c. spinach			
Here reported	Rocky Ford	Dec. 1927	3	2			H.c.beans	—	—	
Here reported	Boulder	Oct. 1928	1	1			H.c.corn	+	+	A
Here reported	Delta	Oct. 1928			61 fowls	57 fowls	H.c. spinach	—**	—**	
Here reported	Calcite	Apr. 1929	4	2			H.c.green tomatoes sausage	— —	— —	
		Total	46	33	Mortality 71.7%					

[A] See text description of this outbreak.
[B] Dry bean pods and stalks in garden and feces of convalescent positive.
*Stool of survivor and brain of victim negative.
**Another jar of same pack.

mans. This outbreak was reported by Curfman[1] in 1917.

Outbreak in Rocky Ford

The next outbreak is here recorded for the first time on information supplied by Dr. Byron B. Blotz of Rocky Ford. In 1913, a child in the family of a German minister in Rocky Ford was apparently suffering from acute gastritis. "Within thirty-six hours, however, this child and four others of the family including the father and mother were dead. The only surviving member of the family was a nursing infant."

"The diagnosis of botulism was made. It was not verified by laboratory findings. Two days before the onset of any symptoms by any member of the family, the mother had prepared some beef broth which they all ate. There was some of the broth left over, however, which the mother re-heated and added to some home canned vegetables, mostly beans. They all ate of this mixture and it is

quite probable that this was the source of infection."

Outbreak in Basalt

The next recorded outbreak was in Basalt in 1915, but details are lacking except that five people were sick and all died after eating canned beans. There was no laboratory proof. This outbreak was reported by Curfman[1].

Outbreak in Lyons

Some time in November, 1920, some chickens were brought from Lyons to Dr. I. E. Newsom of the Colorado Agricultural College. Upon autopsy pieces of string beans were found in their crops. It was learned that their owner had found a jar of the beans spoiled and leaking and had set them outside the cellar door intending to take care of the jar later. Meanwhile the jar froze, breaking off the cap, and the beans were apparently found and eaten by the chickens. Geiger, Dickson and Meyer[2] who recorded this outbreak, stated that the dried crop contents gave a weak toxin of Type A upon culture. A slight discrepancy appears in the number of fowls involved in this outbreak. Professor Newsom stated in a personal communication that the correct number was much less than twenty-five, only six or seven as he remembered.

1921 Outbreak in Pueblo

In April, 1921, two men, two boys, aged 9 and 13, and a girl aged 4, developed symptoms of botulism in Pueblo, presumably due to the eating of home canned beets; two of the children and one of the men died. The brain of one of the victims and a stool of one of the survivors failed to yield B. botulinus. Some of the specimens intended for examination were lost in the Pueblo flood. This outbreak is of special interest because it is one of the few in which no evidence of spoilage was noticed, except a cloudiness in the liquor upon the beets, which was poured off and replaced by hot vinegar. There was no unpleasant odor and the flavor was declared to have been remarkably good. Details are recorded by Geiger, Dickson and Meyer[2].

Dr. A. N. Carroll, of Pueblo, stated in a personal communication that "in 1922 some canned asparagus on the south side of town was discarded as spoiled and fed to the chickens. A great many of the chickens died with symptoms of botulism."

Dr. Tracy Love, in discussing Naugle's report of the Sterling outbreak (see below) also mentioned a case in Pueblo in 1923 presumably due to the eating of home canned beans, but there is no record of laboratory proof. Dr. Carroll wrote that some of the beans were fed to chickens several of which died.

Fort Collins Outbreak

In May, 1922, a farmer's wife near Fort Collins noticed that several jars of her home canned corn appeared to be spoiled. They were thrown out to a flock of about 200 hens about 11 o'clock. About 1 o'clock many of the hens were ill, and suspecting the corn, the owner notified the Agricultural College. Professor Newsom and his students opened the crops of about sixty of the hens showing symptoms and removed the corn but all of these and eighteen others died before the following morning. Most of them were dead by 5 o'clock the same day. Those not operated were treated with two or three teaspoonfuls of saturated solution of Epsom salts. Whether this saved any of the hens was uncertain, but none in which symptoms were observed, survived. Another jar of the spoiled corn was found and its contents as well as some of the corn removed from the chickens' crops were submitted to three different laboratories, all of which reported B. botulinus, Type A.

One of these laboratories experienced some irregularity in the gram stain and in 1922 submitted a culture to one of us (H) at the University of California. We still have this strain of B. botulinus in our collection of anaerobic bacteria (No. 183, Type A).

The outbreak was separately reported by Newsom[3] and by Sackett[4]. Professor Newsom, in a personal communication, stated that he had seen quite a number of cases of botulism in chickens during the past few years, usually traceable to string beans rather than corn, but since his records were all destroyed two years ago by fire, he was unable to furnish statistical data.

Outbreak in Gunnison

Dr. Love in discussing the Sterling outbreak also mentioned three cases, all fatal, in Gunnison during 1923 due to an undetermined cause.

Outbreak in Sterling

In 1924 there were seven human cases with five deaths near Sterling. These were at first thought to be due to the eating of fresh home-made sausage but animal tests of the sausage, home pickled peppers and home canned tomatoes eaten about the same time failed to detect the toxin in any of them, though cultures from the sausage meat (but not the casings which came from a Chicago packing plant) developed the toxin of B. botulinus, Type A. A jar of home canned beans had also been opened for the same meal, and although the cook insisted that the beans were normal in appearance and odor, and that she had tasted them and remained well, she finally admitted that she had thrown the top layer into a receptacle. The discarded beans were removed from the receptacle thirteen days later by an investigator, and were then found to contain both the bacilli and toxin of B. botulinus, Type A. These beans had been prepared during the previous summer by the cold pack method in a water bath. Fifty per cent of the pack spoiled, but none of six apparently normal jars still remaining on the cellar shelves were toxic, though cultures from two developed botulinus toxin, Type A. Cultures of B. botulinus, Type A, were also recovered from bean stalks and dried bean pods obtained from the garden, and from the feces of the two patients who recovered. This outbreak was reported by Naugle[5] and by Stricker and Geiger[6].

Outbreak in Longmont

Five cases of botulism, one fatal, occurred in the Swenson family at Longmont in May, 1925. The first symptoms appeared in the father on May 11, when he complained of weakness and seeing double. The next day he felt something wrong in his throat and had difficulty in swallowing, as well as increased general weakness. On May 13 he consulted a physician who prescribed a large amount of fluids and cathartics for elimination. On the fourteenth he was still unimproved and consulted another physician who continued the eliminative therapy and prescribed sweats, which were taken at home. He felt better after the sweats and decided to go to the Boulder Sanitarium for a Turkish bath, but after taking the bath was too weak to return home and so remained in the sanitarium, where he continued to grow progressively weaker with paralysis of the throat, extremities, diaphragm and other respiratory muscles, until he died May 18th.

A son, J. S., aged 12 years, first noticed difficult vision on May 14. He was also tired and weak. On the 15th there was distress in the throat and swallowing was difficult. He was brought into the Longmont Hospital May 19th. There had been no trouble with bowels or urination though he had vomited after taking castor oil. There was no headache or pain. A blood count by Dr. C. E. Sidwell showed: Leucocytes 9800, erythrocytes 5,300,000, Hemoglobin 80 per cent, differential — polymorphonuclear 37 per cent, lymphocytes 12 per cent, large mononuclears 51 per cent. Botulism was diagnosed by Dr. John Andrew and mixed Types A and B botulinus antitoxin was administered as follows:

May 19, noon	4000 units
May 20, 8:00 p. m.	4000 units
May 21, 9:15 a. m.	4000 units
May 21, 8:30 p. m.	4000 units
May 22, 10:00 a. m.	4000 units
May 22, 8:00 p. m.	4000 units
Total	24000 units

During his stay in the hospital his temperature ranged mostly from 99° F. to 100° F., but dropped on two occasions to 97° F. The pulse ranged from 70 to 110, but remained generally about 90. Respiration was almost constant at 20. He was discharged practically well June 6 and his complete recovery at home soon followed.

Another son, F. S., aged 11 years, developed symptoms similar to those of his brother, but less marked, especially as to the throat. His blood count showed leucocytes 8000, erythrocytes 5,000,000, hemoglobin 84 per cent, differential — polymorphonuclears 64 per cent, lymphocytes 1 per cent, large mononuclears 35 per cent. He was treated with serum exactly the same as the other boy.

During his stay in the hospital his temperature ranged for the first week 99° F. to 100° F., during the last four days, 98° to 99.5° F. Pulse ranged from 80 to 95, respiration 20 to 30. He was discharged, cured, May 31st.

The mother in the Swenson family and one other son showed slight symptoms but recovered without treatment.

It was impossible to secure satisfactory data as to the causative food, though a meal eaten May 10th (the day before the first symptoms appeared) was thought to have been responsible. What appears to be a brief anonymous reference to this outbreak in the "Journal of the American Medical Association" (1926, 86, p. 482) stated that "two foods were suspected, commercially canned spinach and home canned corn. A careful and critical survey of the epidemiologic evidence points to home canned corn, rather than the commercially canned spinach. There are reported, however, conflicting toxicologic findings in a recovered empty can of spinach of the pack suspected." We are indebted to Dr. John Andrew of the Longmont Hospital Association for our data.

The 1927 Outbreak in Rocky Ford

This outbreak is here reported for the first time in detail, although it also was noted briefly by an anonymous writer in the "Journal of the American Medical Association" (1928, 40, p. 764). We are indebted to the attending physician, Dr. Byron B. Blotz, for the following observations.

On December 18, 1927, Dr. Blotz was called to see the family of Mr. Earnest Eads. One girl, aged 18, was already dead upon his arrival, and another girl aged 12 was very ill with symptoms of botulism. As soon as serum could be secured from Denver, 5000 units of mixed types A and B botulism antitoxin were administered to the sick girl, but she died during the night. A boy aged 9 also became ill during the evening; he was given about 10,000 units of the mixed antitoxins and survived.

The following circumstances led up to this outbreak. Friday evening, December 17, 1927, Mrs. Earnest Eads, being ill, asked her two daughters, aged 12 and 18, to open a jar of string beans that had been prepared by Mrs. Eads according to the cold pack method advocated in a circular from the Kerr-Mason Fruit Jar Company, based upon a bulletin of the U. S. Department of Agriculture. Noticing the very foul odor from the beans while they were cooking, she asked the girls to throw them out and get another jar. The girls had each eaten a bean before cooking them, but while the little boy, whose symptoms developed more slowly and who survived, had put a bean in his mouth, he had spit it out because of its bad taste. The beans were thrown out to the chickens but none of the chickens died, due possibly to the fact that the beans had then been cooked, or the toxin may have been one of the types not potent for fowls.

Dr. Blotz stated that it was impossible to secure any suitable material for laboratory tests from the jar that contained the spoiled beans. Thirteen other jars of the same lot failed to show any spoilage, and while feeding tests were made by Mr. J. C. Ward* and Prof. W. G. Sackett of the Colorado Agricultural Experiment Station at Fort Collins, the results were entirely negative. Tests of the soil about the Eads home for bacillus botulinus were likewise negative. This outbreak must therefore be recorded as unproven experimentally.

The Boulder Case

Tuesday, October 16, 1928, Miss F. P., aged 18, consulted one of us (G) in the office, complaining of nausea, followed by abdominal pain, later vomiting, blurred vision, and still later, numbness of the tongue and inability to swallow.

Her family history was irrelevant except that her mother had died suddenly six months before, presumably from cerebral hemorrhage. The girl herself was born in Colorado and had always been well except for excessive menstruation a year or two previously.

Questioning elicited that on Sunday, October 14th, she had tasted several jars of corn which she had prepared by the "cold pack" method, but it was spoiled and she

*Now with the U. S. Bureau of Biological Survey, Denver, Colo.

said she did not swallow it, and did not serve it to the family. This was Sunday noon; she was apparently well until Monday night at about bed time, when she became nauseated and a little later had some generalized pain in the abdomen, and two hours later vomited once. The vomitus did not appear unusual and none of the corn above mentioned, appeared in it. She slept fairly well that night, but on arising next morning (Tuesday) she felt dizzy, her eyes seemed blurred, and two hours later she had some numbness of the tongue. About 4 p. m. she was brought to the office.

Her temperature at that time was 98.8°, the pulse 74. The pupils of the eyes were nearly normal or slightly dilated. They reacted well to light and distance. Nothing abnormal could be made out in the throat. There was a slight drooping of the upper lids, a little more noticeable on the left, but the family thought that was normal. The heart, lungs and abdomen, were normal. At this time the patient was fairly comfortable. She was given a saline and alkaline laxative and advised to take freely of liquids. She returned to her home.

Early the next morning (Wednesday) it was reported that she had spent a restless night, complaining that her throat was very uncomfortable. Since 9 p. m. she had been unable to swallow or to articulate distinctly; much of the liquid taken had returned through her nose.

Examination at the office two hours later showed the general condition much the same as the day before, but the pupils were now more distinctly dilated, the lag in the lids was more marked, the eyes did not converge well, and the soft palate was paralyzed.

A tentative diagnosis of botulism was made at this time. The stomach was lavaged freely and 1½ ozs. of magnesium sulphate were introduced by stomach tube as well as two glasses of malted milk. The patient was hurried to the Community Hospital where 550 cc. of physiological saline solution were given intravenously and intraperitoneally. Sodium bicarbonate was also administered every four hours, and lavage followed by eggnog ordered morning and evening.

It was necessary to send to Denver for botulinus antitoxin. At 5 p. m. 4500 units (mixed A, B and C) were given, half intravenously and half subcutaneously. A rather hard chill followed about two hours later. The same evening 1000 ccs. of physiological saline solution were injected intravenously. At 9 p. m. an additional 3600 units of botulinus antitoxin were given subcutaneously.

Owing to some uncertainty in the diagnosis of botulism and considering the possibility of a bulbar paralysis, such as described by certain German writers following la grippe, and in which they have successfully used autohemotherapy, 10 cc. of the patient's own blood were injected subcutaneously, but without response.

The next morning (Thursday) there was more marked blurring of the vision, complete inability to swallow, marked inability to converge the eyes, and much distress in the throat. The mind continued entirely clear. During the day she became dyspneic and cyanotic. There was involuntary bowel movements. The temperature ranged about 100° and the pulse about 100. Another 1200 units of botulinus antitoxin were given and the stomach lavage and alkaline enemas were continued, with water and nourishment by stomach tube. Caffein sodium benzoate was given in 7½ grain doses every four or five hours, and strychnia in 1/40 grain doses subcutaneously every three hours. As the day advanced, choking and cyanosis became more marked, but no inequality of the diaphragmatic movements could be detected. The knee jerks continued normal, but the pupils of the eyes were widely dilated and reacted only slightly to light and their divergence was even more marked than the day before. Yet the general condition seemed a little better in the evening.

However, Friday morning (5th day) all the symptoms were more marked, especially dyspnea, choking and at times, apnea. Muscular weakness which was not a prominent symptom earlier, now became more conspicuous. Artificial respiration was begun but the symptoms increased in severity and at 8 p. m. she died in apnea. The heart action continued for several minutes after breath-

ing ceased. There was no autopsy.

In considering the possible sources of the girl's attack it was noted that one week before her death she had eaten moderately of potted ham, pimento cheese and peanut butter. However, all of the family did the same and none of the rest suffered. Strong suspicion therefore fell upon the spoiled canned corn, none of which was eaten by others; neither was any of it fed to fowls or animals.

Three Mason jars of the corn were brought to the laboratory Friday afternoon, October 19, about 4:00 p. m. The caps had all been recently disturbed. The corn was rather dry, gassy and sour smelling, and apparently about a spoonful had been removed from each jar. The jars were numbered 2447, 2448 and 2449 in our records.

Animal Tests for Toxin. Quart Jar No. 2447. Owing to the dryness of the corn, 50 cc. of sterile glucose broth were stirred into it. Animal tests were made at once from the milky "juice" resulting. Three guinea pigs weighing from 310 to 350 grams were inoculated with mixtures of 2 cc. corn "juice" and 1 cc. botulism antitoxin, one with Type A (Jensen-Salisbury), one with Type B (Hart), and one with Type C (Bureau of Animal Industry). At 8 o'clock the next morning, all of these guinea pigs were dead in the characteristic attitude of animals dying of botulism; i. e., flat on their bellies. In all there was a slight subcutaneous oedema and congestion, congestion of the lungs, post-mortem digestion of the stomachs, the bile sacs full, the urinary bladders empty.

Obviously, no conclusion could be drawn from this test, as to the type of toxin, but B. botulinus Type A was isolated during the bacteriological examination (see below).

Quart Jar No. 2448. Twenty-five ccs. of sterile glucose broth were stirred in and three guinea pigs weighing from 250 to 350 grams were inoculated in the same manner as described for jar 2447. Next morning the "B" and "C" type pigs were dead with post-mortem findings like those already described except that in the "C" animal the bile sac was empty. The pig receiving Type A serum showed a moderate subcutaneous oedema which nearly subsided within 24 hours. There were never any signs of botulism in this animal and it was killed fifteen days later and found normal, except for a small abscess at the site of inoculation which contained streptococci. The results from jar 2448 clearly indicated botulism toxin of Type A.

Pint Jar No. 2449. Twenty-five ccs. of sterile glucose broth were stirred in and three guinea pigs weighing 200 to 250 grams were inoculated similarly to those already described. At 8 o'clock next morning both the "B" and "C" type animals were dead and the post-mortem findings were like those for the dead guinea pigs from jar 2447 except that the urinary bladder in the "B" type animal was full of urine. The "A" type animal showed a moderate oedema, which subsided next day; it was killed fifteen days later and found normal in every way. The contrast with the "A" type animal from jars 2447 and 2448 was significant in the light of the fact that the streptococcus from jar 2449 proved to be the less pathogenic streptococcus salivarius, while those from jars 2447 and 2448 were streptococcus pyogenes. The result of this test likewise pointed definitely to botulism toxin Type A.

Although the results were obtained too late to be of any therapeutic value, they showed that not more than a few hours need elapse before a definite type diagnosis may be obtained by the animal test. However, in one's zeal to obtain quick results he may defeat his own purpose by giving too large a dose of toxin as no doubt happened in the animals inoculated from jar 2447, and if other pathogenic organisms, such as the streptococci, happen to be present, as in these jars, they may occasionally confuse the typing test.

Bacteriological Examinations. Microscopic examination and cultures in deep brain medium were likewise made at once from the corn juice from each jar. Gram positive rods were the most conspicuous organisms found in each jar on microscopic examination. A complete aerobic examination of all bacteria developing on blood agar plates was made from each of the jars of corn, but since the

animal tests had satisfactorily demonstrated the toxin of B. botulinus Type A in jars 2448 and 2449, no effort was made to isolate the bacillus except from jar 2447 in which the animal test failed to establish the type.

An aerobic hemolytic "hay" bacillus (not identified as to species), streptococcus pyogenes, micrococcus epidermidis, and bacillus botulinus Type A (re-checked with Type A serum supplied by Dr. K. F. Meyer, San Francisco, California), were isolated from jar 2447. It was not even necessary to resort to selective bacteriostasis to eliminate the "hay" bacillus; boiling a 48-hour brain culture for one minute apparently eliminated all organisms but B. botulinus, though the final purity of the culture was insured by three times repeated picking of well isolated colonies from deep agar Burri tubes and a careful check up of the well-known morphologic and cultural properties of this species.

A non-hemolytic "hay" bacillus (species not identificd), streptococcus pyogenes, and bacterium alkalignes were isolated from jar 2448. The presence of B. botulinus Type A was assumed from the animal tests.

A non-hemolytic "hay" bacillus (species not identified), streptococcus salivarius, and bact. proteus were isolated from jar 2449.

Significance of Non-sporulating Bacteria in Canned Foods. The finding of non-sporulating bacteria in all three jars of the canned corn was at first interpreted as an indication that the corn could not have been heated even to the boiling point when it was prepared, and this conclusion would no doubt be justified in case the seal had not been disturbed before the product reached the laboratory. But in this instance all of the jars had been opened and tasted, presumably with the same spoon, which suggested that the streptococci, at least, may have come from the mouth of the girl using it.

The Delta Outbreak

A recent outbreak, which caused no human deaths but resulted in the loss of fifty-seven chickens, came to our attention first through a news item in the Denver Post, October 23, 1928. Mrs. W. L. Wade of Delta had opened a jar of home canned spinach, but finding its appearance somewhat abnormal decided to feed it to her chickens with the result that most of them died. The principal facts were elicited by direct correspondence with Mrs. Wade who also furnished us with a jar of spinach and also one of sweet corn.

The spinach was canned about the middle of June, 1928, immediately after picking, being first blanched in boiling water with a little salt, drained, packed in Ball Mason fruit jars, which were then filled with boiling water, capped with zinc lids and new rubber washers and boiled in a water bath for one hour. The canned spinach was kept in the basement until October 20 when one jar was brought up for use. Before opening, the appearance and color were good and there was no bulging of the lids. After opening, the spinach appeared to be over-cooked and while neither discoloration, cloudiness, nor gas were noticed, a slightly abnormal odor caused Mrs. Wade to feed several jars of the spinach to her flock of 61 chickens. She noticed later that the juice in other jars appeared to be a little cloudy and that some of these had gas bubbles in them. Those that showed gas on opening were not fed to the chickens.

About three hours after the spinach was fed to the chickens she found eighteen of them either dead or dying. Others were on the roost with their heads hanging way down These soon fell off and either went into convulsions or lay flat on their breasts with their heads resting on their bills and later went into convulsions before death.

Of the four fowls that recovered, one was in an apparently unconscious state for about two days; she gradually recovered. The other three were not so ill; they moped about for several days, unable to eat or drink. Mrs. Wade observed twitching movements of the eyes in these birds. The whole picture is the classical one of "limberneck" or botulism in chickens. No other animals had access to the spinach and the chickens were the only ones to suffer.

When Mrs. Wade opened the spinach a neighbor was visiting her and both smelled

the spinach but did not taste it. Curiously, both were attacked two days later by a severe diarrhoea with flatulence which caused Mrs. Wade to inquire whether this could be due to smelling the poisoned food. There is, of course, no scientific basis for this supposition; the fact might be explained by assuming the diarrhoea to be caused by indigestion and anxiety over their own close call, or they may have eaten some other food that was responsible for these symptoms which in no way resembled those of botulism.

Mrs. Wade sent the one remaining jar of spinach and also one of sweet corn from a field close to that in which the spinach was grown to one of us (H) for examination.

The spinach was in a pint Mason jar with zinc top and new rubber washer. The seal was good but not paraffined. The spinach was bright green and contained numerous gas bubbles. There was a slight hissing noise on loosening the cap. The spinach smelled like moist fresh hay and was apparently neither sour nor putrefactive.

Microscopic examination showed a few Gram positive rods. A 275 gram guinea pig was given 1 cc. of the undiluted juice subcutaneously without harm, showing this particular jar to be free from toxin. Neither could B. botulinus be cultivated from this jar of spinach though the non-pathogenic bacillus subterminalis (2490) was present apparently in pure culture. The jar itself was then incubated at 37° C. for one week and 1 cc. of the juice fed to a small guinea pig without effect, thus failing to detect either the toxin or the bacillus of botulism.

The jar of corn was also gassy. The seal was paraffined and in excellent condition; the corn smelled sweet and good. It was quite dry and a few ccs. of glucose broth were added. One cc. of this broth recovered from the jar was injected into a 300-gram guinea pig without harm and no anaerobic bacilli could be cultivated from the corn. Aerobic non-sporulating cocci were present, however, suggesting inadequate sterilization, since cultures were easily destroyed by boiling for one minute. The corn was likewise incubated at 37° C. for one week and fed to a guinea pig without effect.

This outbreak must be recorded as unproven experimentally.

The Calcite Outbreak

Botulism occurred again at Calcite, fifteen miles east of Salida, in April, 1929. Out of a family of seven, four were attacked and two, a boy, 9, and a girl, 7, died. The attack in all was marked by dizziness, diplopia, a feeling of constriction at the throat rapidly developing into complete nasopharyngeal paralysis, with almost complete facial paralysis and inability to hold up the head. The two deaths were associated with respiratory paralysis. The same symptoms, less marked, were shown by the father, 39, and a baby, 2. Polyvalent botulinus antitoxin transported from Denver by airplane, was administered to both of the latter and they recovered completely.

We were unable to secure complete epidemiological data in this outbreak, but Dr. C. Rex Fuller, who treated the patients in the Denver and Rio Grande Hospital at Salida and to whom we are indebted for the above information, furnished us with a sample of fried sausage, and one of home canned green tomatoes.

The sausage appeared and smelled all right. However, several grams were ground up with about 6 cc. of water of which 5 cc. were injected subcutaneously into a 250-gram guinea pig, without effect. It was likewise impossible to detect any toxin in week-old glucose meat broth cultures from the sausage. Neither were there any organisms resembling B. botulinus present in the cultures, although bacterium coli, the non-pathogenic B. centrosporogenes (3037Bd), and an unidentified hay bacillus were isolated.

The tomatoes were obviously fermented and microscopically showed large numbers of yeast cells, as well as a few Gram positive, and some Gram negative rods. One guinea pig was inoculated with 1 cc. of the juice from the tomatoes plus 1 cc. of botulism antitoxin Type A, another with 1 cc. of juice plus 1 cc. of Type B. botulinus antitoxin, and another with 1 cc. of juice plus 1 cc. of Type C botulinus antitoxin, but none of these de-

veloped any symptoms of botulism. Cultures were likewise negative both by animal tests and by exhaustive bacteriological examination, and so the outbreak must be recorded as unproven from the laboratory standpoint.

Summary and Discussion

This report summarizes fourteen outbreaks of undoubted botulism known to have occurred in Colorado during the period 1912 to 1928. Eleven of the outbreaks involved forty-six humans, of whom thirty-three died, giving the remarkably high mortality of 71.7 per cent. Geiger, Dickson and Meyer[2] have reported mortality rates in various groups of outbreaks in the United States as a whole, from 61.3 to 62.4 per cent. Even the latter is much higher than has been recorded in Germany, where, according to Meyer[8] during the period 1898 to 1926 the case mortality was only about 20 per cent. But any one who studies the case mortality of botulism is certain to be impressed with the fact that the number of deaths varies tremendously in different outbreaks; in fact, from zero to 100 per cent, depending upon such factors as the toxicity of any particular food, the amount eaten and others. The difference between the United States and Europe can probably be explained by the fact that most of our outbreaks have been due to fruit and vegetable products, while theirs have been due to meat products, for it is well known that carbohydrates favor strong toxin production by bacillus botulinus. It would be unfair to assume from so small a number of outbreaks that there is any predisposing factor in Colorado to account for the apparently high mortality here, but if a larger series should confirm these figures, we might suspect that the lowered oxygen pressure of the atmosphere at our altitude plays a detrimental role in recovery from botulism just as it does in pneumonia, for respiratory failure is a conspicuous symptom in the moribund stages of botulism. The possibility that reduced oxygen pressure is of importance obviously deserves experimental study and if positive results were secured would support Dickson's[2] advice that, "artificial respiration is therefore indicated and should be continued, **combined with the administration of oxygen,** for hours, if the heart continues to beat."

One of the human outbreaks also involved burros, and we have one record of a fowl outbreak associated with a human case, like those recorded by Dickson[9, 10] and others. There have also been three outbreaks among fowls, not involving humans. It is a curious fact that women intelligent enough to refuse to eat or even taste spoiled food should be willing to expose valuable fowls to it. It is quite certain from our conversation with various people, that several outbreaks of botulism have occurred among fowls in Colorado which cannot be recorded here because the evidence is of the hearsay type.

In all but two of the outbreaks, home prepared products were believed to have been responsible. One exception was the first epidemic which was not recorded until five years after its occurrence; it was ascribed to commercially canned beans and spinach but without adequate experimental evidence except the accidental poisoning of five burros. The other exception was the Gunnison outbreak in which the cause was unknown. Of the twelve outbreaks attributed to home prepared products, beans were probably responsible in seven, corn in two, beets in one, and spinach in one. But only four of the outbreaks were proven experimentally, two involving fowls, two involving humans. Of the two proven fowl outbreaks, one was due to home canned string beans, one to home canned corn, and the same thing is true of the two proven human outbreaks. All of the proven outbreaks were due to the toxin of bacillus botulinus Type A.

It is interesting to note that Meyer and Dubovsky[11] in their comprehensive study of the distribution of B. botulinus in the United States examined 69 soil and plant specimens from Colorado of which seventeen (24.6 per cent) produced botulinus toxin in culture; twelve of these were proven to be Type A while five were not determined.

This does not mean that the other types of B. botulinus are not present in Colorado. One of us (H) in 1926 isolated B. botulinus Type B (No. 667) from a putrid suspension of canned fish submitted by Dr. G. W.

Stiles of the U. S. Bureau of Animal Industry of Denver. A boy who had heard considerable about botulism, one evening ate some canned fish, but while doing so decided that it was not just right. During the night he was nauseated and vomited and his father said that his temperature was subnormal. Next morning he was still weak but soon recovered. He brought some of the remaining fish to the laboratory; it appeared good to both sight and smell and no bacteria could be detected microscopically in it. Several white mice were injected with a thick suspension of the fish; they remained well and we concluded that there was no toxin present. No cultures were tested by us, but Dr. Stiles inoculated some of the fish into chopped meat, medium, and this developed a mixed culture of B. botulinus Type B, which we confirmed and from which we isolated the pure strain above mentioned. This experience raised the question as to whether such rapidly developing but fleeting symptoms might be due to a weak toxin; we incline strongly to the view that they were purely psychological and that the presence of the bacillus in this instance was accidental and irrelevant.

In March, 1927, we also corroborated Dr. Stiles' discovery of a Type C botulinus toxin in a sample of "Hemorrhagic Septicemia Aggressin" manufactured commercially in Colorado Springs, which is said to have caused the death of a number of sheep and cattle upon which it was used in New Mexico. It was not possible, however, to isolate the bacillus from this material because it had been filtered presumably after the growth of the organism occurred, though it still contained numerous other bacteria. We have no evidence that any cases of botulism occurred in Colorado through the use of this product; a brief reference to the outbreak in New Mexico appeared in the annual report of the Chief of the Bureau of Animal Industry, U. S. Department of Agriculture, for the fiscal year ending June 30, 1927.

Geographic Distribution

Outbreaks in Colorado have not been restricted to any particular locality; in fact, they have been quite widely distributed throughout the state as shown in Plate I. This is interesting in view of the sharp separation of Colorado into two markedly differing areas, the western high cordilleran region and the eastern plains section. Botulism has occurred about equally in both. But its frequency does not at all correspond to the distribution of population; in fact, most of the cases have occurred upon farms or in small towns, rather than in the cities.

The Prevention of Botulism

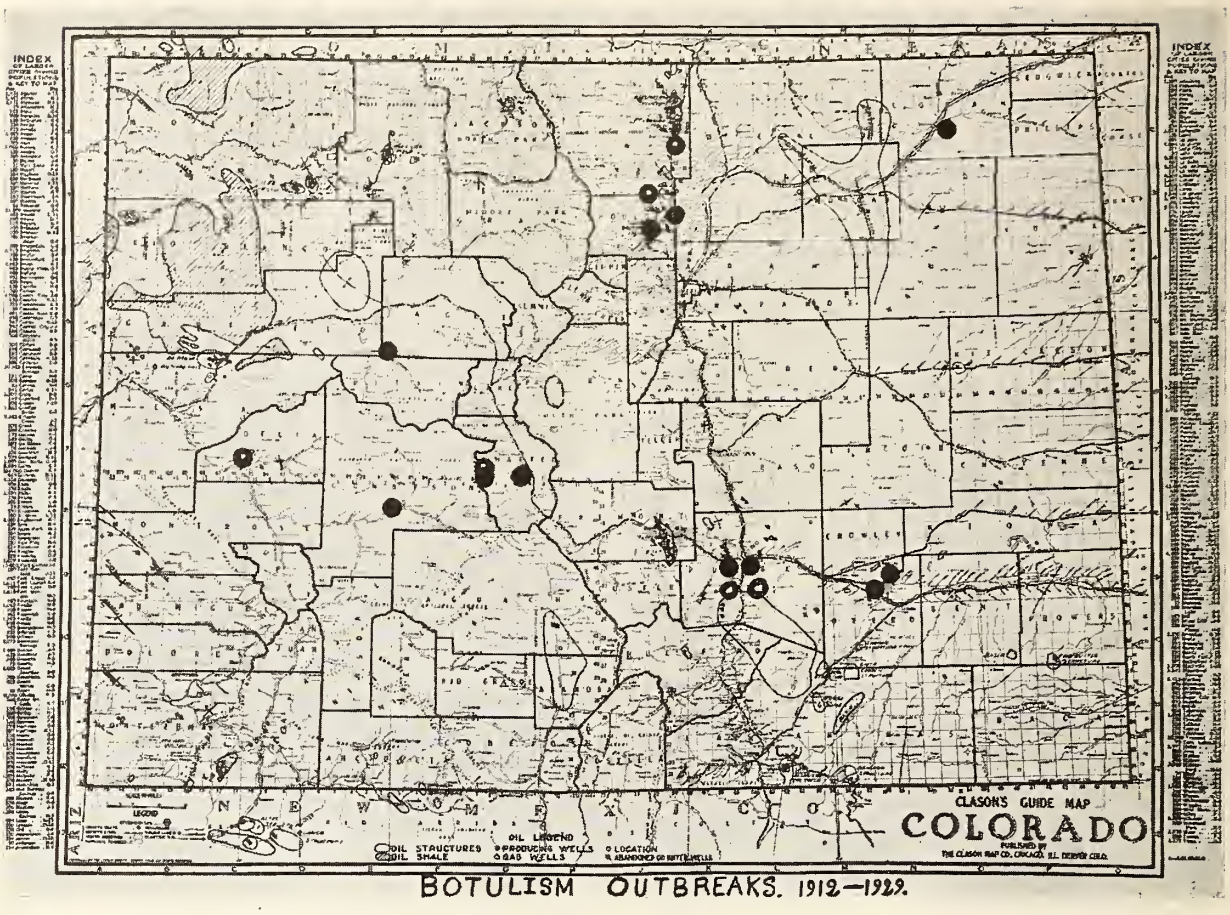
If this paper is to fulfill its avowed purpose, something should be said relative to the prevention of the disease. The underlying principles are well known to the profession but not to the laity.

First. Bacillus botulinus is widely disseminated in the soil and upon products of the soil. These bacilli, however, are harmless until they have produced their toxin in food products. The eating of fresh vegetables and fruits therefore involves no danger from botulism..

Second. Bacillus botulinus forms highly resistant spores which can only be destroyed in canning processes by steam under pressure or by the discontinuous method of sterilization; the latter involves repeated and thorough heating on each of several days to the temperature of boiling water. The addition of lemon juice to vegetables is said to aid sterilization[12].

Third. Botulism is due to a powerful toxin produced by growth of the bacillus botulinus in preserved foods under anaerobic conditions; i. e., where the air has been excluded, as in sealed jars. Such growth usually, though not invariably, leads to evidence of spoilage, turbidity, gas, softening of the food, or unusual odors. Such food should never be tasted raw.

Fourth. Boiling for a few minutes destroys the toxin even though it does not destroy the spores. When the toxin is destroyed by boiling, the spores are harmless if taken by mouth. If all canned foods were boiled even for a few minutes before serving, the mortality from botulism would be greatly reduced. Canned beans, canned corn, and canned spinach should never be eaten before cooking. Tasting to determine



Solid spots indicate human outbreaks; spots with white centers indicate fowl outbreaks, except in Chaffee county where five burros died in connection with a human outbreak.

whether spoilage has occurred is a most dangerous practice, especially in the case of home canned products.

Fifth. The disposal of spoiled foods presents a real problem to the housewife. If they are thrown out to domestic animals or fowls, considerable losses may follow, as has been shown. Boiling for a short time would make them safe from this standpoint but fails to destroy the spores and few intelligent people would care to inoculate their soil with large numbers of bacillus botulinus spores.

Boiling in strong lye will destroy both spores and toxin, and while this involves a little trouble and some expense, it is probably worth while as a means of preventing increased contamination of the soil. The same treatment makes it possible again to use the containers in which spoilage has once occurred, without danger.

REFERENCES

[1]Curfman, G. H. Botulism. Colorado Medicine, 917, 14, p. 35.

[2]Geiger, J. C., Dickson, E. C., and Meyer, K. F. The Epidemiology of Botulism. Pub. Health Bul. No. 127, 1922.

[3]Newsom, I. E. An Outbreak of Botulism in Chickens. North Am. Vet., 1922, 3, p. 455.

[4]Sackett, W. G. Spoilage in Canned Vegetables. Colo. Exp. Sta. Rep., 1922, p. 12.

[5]Naugle, J. E. Clinical Report of Botulism at Sterling. Colorado Medicine, 1924, 21, p. 175.

[6]Stricker, F. D., and Geiger, J. C. Outbreaks of Botulism at Albany, Oregon and Sterling, Colorado, February, 1924. Pub. Health Rep., 1924, 39, p. 655.

[7]Hall, I. C., and Whitehead, R. W. A Pharmaco-Bacteriologic Study of African Poisoned Arrows. Journ. Inf. Dis. 1927, 41, p. 51.

[8]Meyer, J. F. Botulismus. Handbuch der path. Mikro-org. Kolle u. Wassermann, 1928, 4, p. 1269.

[9]Dickson, E. C. Botulism—A Clinical and Experimental Study. Monograph of the Rockefeller Institute for Medical Research No. 8, 1918.

[10]Dickson, E. C. Botulism—A Further Report of Cases Occurring in the Pacific Coast States. Arch. Int. Med., 1918, 22, p. 483.

[11]Meyer, K. G., and Dubovsky, B. The Distribution of the Spores of B. Botulinus in the United States. Journ. Inf. Dis., 1922, 31, p. 541.

[12]Cruess, W. V. Home and Farm Canning. California Agrl. Exp. Sta. Circ. No. 158, 1917.

THOUGHTS ON HELIOTHERAPY AND ITS USE IN PULMONARY TUBERCULOSIS*

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The remarkable success achieved by Rollier in the treatment of "surgical" tuberculosis by sun baths aroused a local enthusiasm for the treatment of pulmonary forms also. The Swiss heliotherapists soon encountered unfavorable results in lung cases and abandoned this form of treatment. In the meantime the larger world was taking notice of the continued success of Rollier's treatment at Leysin. Gauvain began to publish startling cures of "surgical" tuberculosis in England in 1916 and Lo Grasso in this country a year later. Renewed attempts at the heliotheraphy of pulmonary tuberculosis have been made in the last ten years with increasing success. It is inevitable that a method that acts as a specific in other tuberculous lesions must attract those who are dealing with the most important of all forms of tuberculosis. The very hesitancy, however, of the phthisiologists is evidence that there are difficulties to be encountered.

At the present time the weight of opinion favors sun treatment in only a limited class of consumptives. Bernard[1] and Bullock[2] would select cases that are afebrile, Mayer[3] and Wood[4] cases that have little or no fever. The judgment of Bullock[2] that cases should be of the productive and not of the exudative type meets with general agreement. Mayer[3] notes as especially indicated cases with little constitutional impairment and typical ambulatory cases of chronic phthisis with no symptoms other than cough and expectoration. He would also treat hopeless cases with sun baths as a last resource. Pollock[5] got his best results in convalescent cases in which the foci were essentially fibrous.

Acute tuberculosis or severe toxaemia are mentioned by McCutcheon[6], Howson[7], and others[10, 12] as definitely excluding sun treatment. Marked weakness, much toxaemia and hectic fever are the only contra-indications which Rollier[8] will recognize. Opinions vary widely on the amount of fever which should be taken as a contra-indication; some have already been cited. Hawes[9] would reject cases that have fever or any other indication of "activity," Howson[7] those with "much fever." Lo Grasso and Balderrey[10] do not consider moderate fever or activity as contra-indications.

One of the chief reasons that has made physicians hesitate to apply the sun treatment is the fear that it will cause haemoptysis. It is claimed by many that when the treatment is given cautiously, this fear is unjustified. However, a very modern writer[7] would still exclude cases that have had recent bleeding. Among those who have stated definitely that haemoptysis is not a contra-indication are Lo Grasso[10], Bronfin[11] and Krusen[12].

Should heliotherapy be limited to those who can produce a coat of tan? Some[2, 7] say yes, others do not insist on this. It is probably a question of limiting dosage rather than of abandoning treatment. Bronfin when he meets with untoward symptoms (headache, nausea, dizziness or palpitation) first reduces his dosage and only when the symptoms still persist does he give up heliotherapy altogether. The question of dosage is discussed in some detail below.

It is not easy to divide patients neatly into two groups: exudative and fibrosing, since both processes are liable to occur in the same chest. Experience has shown that the more nearly a patient approaches the purely fibrotic type the safer will he be in the sunshine. Watson[13] has emphasized especially the dangers of sunning patients of the exudative type, pointing out as Baemeister[14] did, some years previously, that heliotherapy may prove dangerous in phthisis. Cooper[15] makes a less drastic recommendation that heliotherapy be avoided in the absence of fibrosis.

In estimating the results achieved by heliotherapy we must bear in mind the tendency to report positive rather than negative re-

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sults. We must also remember that many people with pulmonary tuberculosis have other forms of tuberculosis as well—laryngeal, intestinal, etc. If these complications are benefited or cured by the sun treatment the patient is likely by that fact alone to put up a better fight against the disease in his chest. On this ground we may discount to some extent the success of Rollier and of Lo Grasso with cures not purely pulmonary. But when all such allowances have been made and admitting some discouraging reports, there remains in the more recent literature a solid collection of data for the optimist. Wood[4] reports definite clinical improvement in fifteen out of twenty-one cases; Crocket[16], 85 per cent of seventy-two pulmonary cases improved by phototherapy (sunlight supported when necessary by artificial sources) as against 65 per cent of the controls who were improved. Krusen[12] finds helictherapy on the whole to be of value, though his excellent protocols do not warrant great enthusiasm. The conclusion of Lo Grasso and Balderrey that the treatment is "most satisfactory" is justified by the detailed report in their paper. McCutcheon[6] also thinks sun treatment "most valuable." Bronfin[11] is very cautious; in advanced cases he did not get good results and in less advanced cases he is not sure that happy consequences are to be attributed to the heliotherapy. Two excellent papers published last year[7, 15] give definite credit to heliotherapy, at the same time insisting that it must be used with great care and only on selected cases.

There is enough here to keep us hopeful, yet not enough to leave us satisfied. A scientific mind inevitably asks itself: can this treatment be put on a more rational basis? If the physiological or biochemical reactions that underlie these favorable results were understood what advances might we not make? An analysis of the treatment immediately discloses that we subject our patients to the action of no less than three powerful physical agents when we put them into the sun: (a) Ultra-violet light, (b) heat, (c) the cooling power of moving air. Which is or which are the important agents? Is one useful or all? Is any one, perhaps, not only useless but actually injurious?

One can hardly be surprised if, at the present time, the ultra-violet element in the treatment seems to receive more than its fair share of attention. The following sentence gives a clue to much recent research: "As vitamin D causes calcification in rickets, we may conclude that it should act likewise in tuberculosis"[17]. The desire to cause calcification is of course not new, as the advertising departments of the medical journals can testify. The fact that healed tuberculosis shows calcified nodules was enough to suggest that progressive tuberculosis is associated with lack of calcium and some years ago the literature, particularly the French literature, was full of articles on "demineralisation." We must agree with some more recent French investigators[18] that the evidence of demineralisation in tuberculosis was never convincing. Moreover it is a very large assumption that because light causes calcification in rickets it will do so in tuberculosis. It has been known for at least five years that in rickets either the serum calcium or the serum phosphorus or both are below normal[19, 20], but the analysis of blood from tuberculous patients has never shown analogous results. The serum calcium may be deficient in a few advanced cases[21, 22] in some atrophic cases[23], but practically all the investigators are agreed that in the great majority of tuberculous patients the blood calcium is within normal limits[21, 22, 23, 24, 26, 27]. Should a consumptive also suffer from rickets he may take comfort in the thought that white rats are more susceptible to tuberculosis when they have rickets than they are normally[25].

It is worth noting that two recent investigations seem to show that although the blood calcium is within normal range in tuberculosis, it may sometimes be increased from a low normal to a high normal either by a cod liver oil and calcium diet (2 grammes of calcium oxide daily)[26] or by doses of calcium salts with parathyroid extract[27]. There is much more to be said on the relation of sunlight to serum calcium, but nothing that brings conviction that tuberculosis can be cured by the same biochemical means as

rickets. There are also many other studies on the effect of sunlight on the organism which may eventually show the way to a more rational therapy. But this paper is growing too long.

The pioneer of air bath therapy is the physiologist, Leonard Hill. Hill's work on metabolism so greatly impressed Gauvain that the latter has added to his open air cure the extra stimulation of sea bathing for those who can stand the shock[28]. Lo Grasso and Balderrey[10] give their patients air baths when the sun is not available and other heliotherapists use air baths as an introduction to sun baths[7].

Bullock is probably not the only one who has come to the conclusion that sunlight is of little or no use in pulmonary tuberculosis, but that air baths are of great importance[2]. As those who give air baths never attempt to shield their patients from the diffuse light of the sky, the baths are really a mixture of cooling air with a small dose of ultra-violet light. There is, however, no doubt that the cool air does stimulate metabolism, nor that too much cooling may also be injurious.

The heat rays of the sun exert a beneficial effect, according to Rollier, by dilating the capillaries of the skin. But he is the first to insist on the danger of exposure to the excessive heat of the mid-day sun.

We must conclude that researches on the physiological action of light, radiant heat, and moving air have not advanced yet to a very helpful point, but that in each case the dosage should be very carefully graduated. There is not wanting evidence that the most successful results in heliotherapy have been won by those authors who have used small doses and have increased these with great precaution. Bullock[2] saw no advantage during the years that his patients were exposed for hours at a time to the intense heat of New Mexico, but has noticed a definite gain since he began to expose them only to the "sky shine" and air. In other cases good results are reported from regions where the sunlight never is intense even in summer. But if small doses have been given, it seems to be as much by good luck as by good management. For although simple laboratory methods are available for measuring the amount of each of the three physical agents used, **not one of the authors quoted gives a single measurement either of the intensity of the ultra-violet light or of the cooling power of the air or even of the sun temperature to which their patients are exposed.**

If a medical writer should send for publication a paper in which he described how he gave one teaspoonful of a solution of Sodium Bicarbonate one day and two teaspoonfuls the next, and so on, the editor would undoubtedly return his manuscript for information on the strength of the solution. Yet if any mention is made of the length of exposure to sunlight, no one ever demands that there should be added details of the cooling power of the air, the heat of the sunshine or the intensity of the light. If such observations were made it is possible that clinical research might make rapid strides and it is at least probable that therapeutic results would be improved.

The significance of measured dosage in heliotherapy will perhaps be more readily grasped if we have some actual data before us. The two tables below are prepared from observations made in Boulder on the last day of July and during the month of August, 1928. The ultra-violet readings were made by the method of Clark[30]. This consists essentially in the use of a mixture of high temperature zinc sulphide ground in a mortar with a saturated solution of lead acetate. The temperature readings were made with an ordinary mercury thermometer.

TABLE I

A Comparison of Light Intensity and of Temperature Between Sun Exposures at 7 A. M. and Shade Exposures at Noon

	Sun at 7 A. M.	Shade at Noon
Average intensity of ultra-violet	0.28	0.35
Average temperature	93°F	78°F
Maximum intensity of ultra-violet	0.38	0.38
Maximum temperature	104°F	84°F
Minimum intensity of ultra-violet	0.18	0.29
Minimum temperature	72°F	66°F

It will be seen from Table I that during the month of August, 1928, in Boulder, more ultraviolet could be obtained on clear days in the shade at noon than in the sun at 7 a. m. The hour of seven is selected because after

that hour the August sunshine becomes, to the writer at least, uncomfortably hot. The greater range between maximum and minimum is found in the morning. This is partly due to a greater number of observations taken at that time; there were 22 perfectly clear mornings in August and only 9 unclouded noons. It remains true that if unmeasured exposures are to be made the noon skyshine will give a much more constant dosage than the early morning sun. A few white clouds in the sky tend to increase the dose of ultraviolet, but not to a great degree.

The second table is derived from 28 readings taken during the day of July 31st. There is in America one institution which, for purely administrative reasons, divides patients into two groups: one group is sunned from 1:30 p. m. to 3:30 p. m.; the other from 2 p. m. to 4 p. m. A glance at the table shows that, if this institution had been in Boulder on July 31st last, one group would have got a much larger dose than the other. Variations during the day, however, are no greater than variations between summer and winter, or between different latitudes, or even between different altitudes in the same latitude. It is impossible to control dosage without measuring it.

TABLE II

	Light intensity—July 31			Time of exposure needed for equal doses
	Sun*	Sky Northern half of	Total	Time of exposure needed for
At 6 a.m.	0.2	0.04	0.24	3 hrs. 48 minutes
7 a.m.	0.64	0.28	0.92	1 hr.
8 a.m.	0.94	0.3	1.24	44 minutes
9 a.m.	1.06	0.36	1.42	40
10 a.m.	1.18	0.48	1.66	33
11 a.m.	1.66	0.5	2.16	25
noon	1.7	0.5	2.2	25
1 p.m.	1.8	0.42	2.22	24
2 p.m.	1.8	0.48	2.28	24
3 p.m.	1.28	0.36	1.64	34
4 p.m.	0.86	0.3	1.16	48
5 p.m.	0.86	0.22	1.08	54

*Readings taken normal to sun's rays with skyshine excluded. In Table I the readings represent total light falling on a horizontal surface.

Supposing two patients, both increasing their exposure by five minutes daily, but one starting his bath at 10 a. m. and the other at 2 p. m.; it will be seen that one is increasing his dosage very much more rapidly than the other.

Leonard Hill has invented another easy method of measuring ultraviolet light: the acetone methylene blue method[31]. Hill's katathermometer is the ideal instrument for measuring the cooling power of the air, and its operation is simplicity itself[32]. This factor, depending as it does on air movement, humidity and temperature, is a very variable quantity. By the use of wind screens it can be held within a reasonable range. It is possible, though by no means certain, that the patient's sense of comfort may be taken as a safe guide. Even so it would at least be interesting to know what is the range of katathermometer readings which constitutes a comfort zone for each patient and how the comfort zone changes as the patient becomes adapted to exposure.

Summary

The recent literature on heliotherapy in pulmonary tuberculosis is reviewed as to indications and results. Some encouragement is derived from this review and a desire to know more of the rationale of this therapy. Biochemistry has not yet provided a scientific basis. Further clinical research is called for and a plea is entered for more accurate measurement of the doses that are being administered.

REFERENCES

[1]Bernard, L.: Les cures climatiques et hydrominerales chez les tuberculeux pulmonaires. Rev. d. l. Tuberculose, 1926. 7, 54.

[2]Bullock, E. S.: Light in the treatment of tuberculosis. Am. Rev. of Tuberculosis, 1928. 17, 375.

[3]Mayer, E.: Clinical application of sunlight and artificial radiation: Williams and Wilkins, 1926. Pp. 205-209 and 318.

[4]Wood, J. E.: A note on heliotherapy in pulmonary tuberculosis. Lancet, 1926, ii, 372.

[5]Pollock, W. C.: Heliotherapy in pulmonary tuberculosis. Am. Rev. of Tuberculosis, 1926, 14, 503.

[6]McCutcheon, R. H.: Heliotherapy in the treatment of pulmonary tuberculosis. Am. Rev. of Tuberculosis, 1925, 11, 85.

[7]Howson, C. R.: Heliotherapy in pulmonary tuberculosis; its possibilities and danger. Cal. & Western Med., 1928, 29, 25.

[8]Rollier, A.: Heliotherapy: Henry Frowde and Hodder and Stoughton, 1923, Pp. 109-113.

The heliotherapy of tuberculosis. Am. Rev. of Tuberculosis, 1924, 8, 489.

[9]Hawes, J. B.: Heliotherapy, Boston Med. & Surg. Journ., 1926, 194, 281.

[10]Lo Grasso, H., and Baldberry, F. C.: Heliotherapy in the treatment of pulmonary tuberculosis, Am. Rev. of Tuberculosis, 1924, 10, 117.

[11]Bronfin, I. D.: Heliotherapy in advanced pulmonary tuberculosis, Am. Rev. of Tuberculosis, 1925, 11, 96.

[12]Krusen, F. H.: Heliotherapy in pulmonary

tuberculosis, Am. Rev. of Tuberculosis, 1927, 16, 180.

[13]Watson, S. H.: The use and abuse of heliotherapy in tuberculosis, Journ. Am. Med. Assn., 1926, 87, 1026.

[14]Bacmeister, A.: Über die Strahlen behandlung der menschlichen lungentuberkulose. Zeitschr f. Tuberk, 1916, 27, 108.

[15]Cooper, A. T.: Results of heliotherapy in pulmonary tuberculosis, Am. Rev. of Tuberculosis, 1928, 18, 66.

[16]Crocket, J.: Ultra-violet ray treatment in tuberculosis, Tubercle, 1926, 8, 1.

[17]McRae, D. F., and Ingvaldson, T.: The lipoid phosphorus-cholesterol ratio before and after feeding irradiated eggs to tuberculous patients, Am. Rev. of Tuberculosis, 1928, 17, 520.

[18]Debré, R., Goiffon, A., and Guyonnard, M.: La calcémie chez l'enfant et particulièrement le nourrison tuberculeux. Rev. d. l. Tuberculose, 1926, 8, 80.

[19]Tisdall, F. E.: The effects of ultra-violet rays on the calcium and inorganic phosphorous content of the blood serum of rachitic infants. Can. Med. Assoc. J., 1922, 12, 536.

[20]Orr, W. J., Holt, L. E., Wilkins, L., and Boone, F. H.: The calcium and phosphorus metabolism in rickets with special reference to ultra-violet therapy. Am. Journ. Dis. of Children, 1923, 26, 362.

[21]Halverson, J. O., Mohler, H. K., and Bergeim, O.: Calcium in the blood in tuberculosis, J. Am. Med. Assn., 1917, 68, 1309.

[22]Zimmermann, W.: Der Serum kalkspiegel bei lungentuberkulose, Deutsche Med. Woch. 1924, 50, 686.

[23]Barkus, O.: Serum calcium in surgical tuberculosis, Am. Rev. of Tuberculosis, 1924, 9, 81.

[24]Howe, M. G., and Medlar, E. M.: The calcium and inorganic phosphorus content of the blood serum in tuberculosis, Am. Rev. of Tuberculosis, 1924, 10, 408.

[25]Grant, A. H., Suyenaga, B., and Stegeman, D. E.: The effect of rachitic diets on experimental tuberculosis in white rats. Am. Rev. of Tuberculosis, 1927, 16, 628.

[26]Matz, P. B.: Studies in the calcium content of blood of normal and tuberculous subjects. Am. Rev. of Tuberculosis, 1925, 11, 250.

[27]Ellman, P.: Co-relation of calcium metabolism, parathyroid function and pulmonary tuberculosis, Tubercle, 1928, 9, 162.

[28]Gauvain, H.: The effect of sun, sea and open air in health and disease. Practitioner, 1927, 118, 137.

[30]Clark, J. H.: The zinc sulphide method of measuring ultra-violet radiation and the results of a year's observations on Baltimore sunshine. Am. Journal of Hygiene, 1929, 9, 64.

[31]Hill, L., Webster, A., and Eidinow, A.: Measurement of ultra-violet light by means of an acetone-methylene-blue solution. Lancet, 1924, i. 745.

[32]Campbell, J. A., and Hill, L.: The katathermometer in studies of body heat and efficiency Brit. Med. J. 1922, i, 301, 385 Also Med. Res. Council, 1923, No. 73.

DIAGNOSIS AND TREATMENT OF OTITIS MEDIA AS SEEN FOLLOWING ACUTE COLDS AND INFLUENZA*

C. E. SIDWELL, M.D.,
LONGMONT, COLORADO

Every fall and winter there are many upper respiratory infections accompanying the acute exanthemata, common colds, and influenza, and the physician, alert in making an early diagnosis and wise in the management of his cases, does much to make his patients comfortable, reduces the number of more serious complications, and shortens the convalescent period. The treatment of these ear, nose and throat infections is not new; but the early diagnosis and appropriate treatment, carried out promptly and vigorously, cannot be emphasized too strongly.

It is not my intention to discuss here surgical technique or myringotomy nor the more difficult operations, because that lies in the realm of the otolaryngologist or one who is sufficiently skilled to perform the operation indicated. I wish to emphasize the importance of an early diagnosis of middle ear involvement by thorough examination of the ears and a study of all symptoms that occur in the course of common colds and influenzal infections.

It might be well to consider a typical case of acute purulent otitis media:

A feeling of fullness, in one or both ears, occurs after blowing the nose, sneezing, or paroxysms of coughing. After several hours this grows more distressing and is accompanied by a sharp lancinating pain localized in the affected ear, radiating to the corresponding side of the head, with or without impairment of hearing, a rise in temperature, and malaise.

If the drum ruptures spontaneously, pain may partially or wholly cease. There follows a discharge of sero-sanguinous fluid from the affected ear which later becomes purulent and is more viscid. In favorable cases drainage continues one or two weeks, becoming mucoid, thin and scanty, and the ear becomes dry again and other symptoms subside. In unfavorable cases whether spon-

taneous rupture of the drum occurs or not, with drainage the pain continues, but the physician may not be called to give relief at this time. The fact that the drainage is profuse may be misleading to the physician, and he may delay having the drum properly incised. He may waste valuable time in searching for other causes of the persistently high temperature. It is in this kind of a case that more serious complications develop and demand surgical interference of a graver type.

It happens occasionally that even though myringotomy be performed repeatedly, the mastoid cells become involved and the mastoid must be drained to prevent meningitis or thrombosis of the lateral or cavernous sinus.

A small percentage of cases die because of rapid extension of infection even though the mastoid cells and the lateral sinus, when involved, be properly drained. Many children and a few adults, in the course of some disease like pneumonia, scarlet fever, influenza, or even the common colds, may be suffering from a severe toxemia, whose main source lies in an infected middle ear or mastoid, though the majority of such cases have symptoms which make a diagnosis easy, and of course when the diagnosis has been made, the treatment is effective, providing it is carried out promptly and vigorously. It not infrequently happens that in children and mostly in infants, a middle ear infection may cause little else than a persistent high temperature and some malaise, whether the membrana tympani ruptures spontaneously or not. The ear may be overlooked entirely, as the cause of the indisposition or failure to return to normal health.

McKenzie tells us that the clinical phenomena induced by the capsulated organisms, the streptococcus mucosus and diplococcus lanceolatus capsulatus, differ widely from those produced by the common noncapsulated bacteria. The symptoms which often guide us in a diagnosis and the treatment of the ordinary type of ear affection are not well marked at first and some time may elapse before we realize the serious nature of the disease. In such cases symptoms referable to the ear may escape notice, and meningitis in particular is to be feared.

Many times I have found the ears of an infant partially or wholly filled with "wax" as the laity calls it. It is my opinion that this debris is dried pus and blood mixed with cerumen and if the ear is thoroughly cleansed with dilute hydrogen peroxide or boric acid solution, the drum will often be covered with exudate, moist or dry, according to the length of time the child has been sick. When this exudate has been removed from the drum, the membrana tympani is often found oedematous and red, and may be bulging; at any rate all landmarks are gone.

Some of these cases in time return to normal health, but a few continue to lose weight, become pale and anemic and dehydrated and present a difficult problem of feeding for the physician, who may not be called until the latter condition demands his services. In this type of case it is clear that infection in the sinuses, middle ear or mastoid cells may be the cause, which, if promptly removed, will bring about a speedy recovery, without change of diet or other treatment.

Many cases do not present a typical picture of acute purulent otitis media and most of these cases are found in infants who cannot give any information whatever that will guide the physician in his diagnosis, other than a persistently high temperature, restlessness, more or less constant crying, and inability to sleep.

It is not difficult for infection to reach the middle ear in infants, because the eustachian tube is short and more or less straight and favors the entrance of infectious material. The adenoid tissue is usually hypertrophied and prevents drainage or aeration of the naso-pharynx; consequently bacteria find conditions suitable for growth in that location.

It is most difficult to examine the ears of a sick and nervous child, especially if he offers resistance, whether he be large or small. So often it happens that the physician does not receive the co-operation of parents or other helpers, and he may be inclined to be less thorough in his examination. The external auditory canal may be partially

or wholly filled with cerumen or dried secretion and not until this debris has been removed, may a clear view of the membrana tympani be obtained and an intelligent idea of pathology gained. I doubt not that there would be fewer cases of this kind to baffle the physician, if the nose, throat and ear should be more often thoroughly inspected during colds and influenza epidemics.

In not a few cases, sick children have been examined and treated for some of the graver conditions, such as pneumonia, meningitis, or gastro enteritis, and the ears had not been examined. Occasionally cases of suppurating middle ears may have a reflex cough suggestive of pneumonia, and the writer has observed that after the membrana tympani was incised the cough entirely disappeared.

It is a well known fact that an ear speculum, probe, or other foreign body making pressure in the external auditory canal, may produce a reflex cough, vertigo and nausea, and it should be remembered that pathology in the ear may cause symptoms in themselves misleading. Ginsburg of Toledo reports a number of interesting cases in which he shows reflex conditions may have their origin in the ear. He says, "The ear may be a fertile source of reflex symptoms which manifest themselves in diverse ways." "All cases of nervous and mental disturbances should have a thorough otologic examination to eliminate foci of irritation which may be productive of reflex symptoms."

In the treatment of acute purulent otitis media the membrana tympani should be promptly incised as soon as the diagnosis has been made. Gas anesthesia is preferable for most cases. Local anesthesia, using Bonnet's solution in cases of very young infants, where it is not safe to use nitrous oxide or ether, is effective. In the majority of adult cases the anesthesia of choice is Bonnet's solution or mixture made by mixing equal parts of cocaine flakes, menthol, and pure phenol, allowing it to remain in the ear fifteen minutes, after which the drum may be freely incised without causing much pain, providing a small, sharp knife is used.

My experience convinces me that when a child resists examination and handling, it is better to incise the drum at once, rather than try to produce anesthesia by the use of drops. It often happens that general anesthesia is not available, and one must use the local anesthetic or operate without it. In most cases there will be pain for a few hours, following myringotomy, which usually can be relieved by applying heat, installation of 10 per cent phenol glycerine, or irrigation of the ear with very warm, sterile, normal salt, soda or boric acid solution. When drainage becomes well established, pain usually stops, temperature drops to normal within forty-eight hours, pain and oedema in the region of the mastoid subsides, and the disease runs the usual course. If pain does not stop within twenty-four hours, and the temperature remains high, the ear should be inspected to determine the cause. It may be that a clot of blood has dried and prevents drainage, or the drum may have healed. In such cases one should not hesitate to repeat the surgical procedure until drainage is established and relief obtained. Hajek advises that when a hyperpyrexia does not drop to normal within forty-eight hours, after free incision of the drum, one should consider posterior drainage. Some mastoid abscesses will recover without surgical interference, but free incision of the membrana tympani in acute purulent otitis media, inserting a sterile gauze drain, will usually make posterior drainage unnecessary. I believe repeated incision of the drum is justified so long as it has a favorable influence on the course of the disease, but mastoid drainage must not be put off too long. The surgeon may not hope to obtain favorable results in middle ear infections unless he follows up his cases after the ear has been opened, and demands that his patients rest in bed and sees that ample drainage is obtained.

Irrigation of the external auditory canal for a few days with boric or sterile soda solution, using a sterile syringe, is sometimes advisable where the drainage becomes very thick, but in no case do I advise its use unless I am sure that the attendant will use meticulous care in the treatment of this condition.

I usually give the following directions to the nurse or to those taking care of the case:

1. Put the patient to bed and keep him quiet and warm.
2. Change the cotton in the ear very often. The cotton must be from a fresh package.
3. Report the condition of the patient within twenty-four hours.
4. Sterilize the ear syringe and utensils and irrigate the ear once daily with sterile soda solution. (Not all cases.)
5. Apply heat during alternate hours for the first twenty-four hours, except in cases where heat at first causes discomfort.
6. Put five drops of 10 per cent silvol, argyrol, or neo silvol in each nostril every three hours, night and day, no matter how much the patient may object. After the first day the drops may be used less often.
7. Give the patient light, nourishing diet with plenty of liquids and fruit juices. If possible, measure the fluid intake and output for a few days, to guard against acidosis.
8. Keep in touch with the family physician where possible.
9. Return to my office in about one week.

While the above will give the average person something definite to do, it has to be varied to suit the case. It is not possible nor is it necessary to hospitalize all patients, but in cases not running a favorable course where a mastoid is involved or where proper treatment is not and cannot be carried out for various reasons, then hospitalization is indicated.

Where hypertrophied adenoids and tonsils prevent recovery (i. e. if the drainage persists providing other symptoms have subsided) it is advisable to remove one or both, under nitrous oxide, or light ether anesthesia.

Conclusions

1. Middle ear infections, while not in themselves serious, may develop complications which are difficult, if not impossible to cope with.
2. The difficulty in examination of ears of children tends to delay us in the early diagnosis of acute purulent otitis media.
3. All who are called upon to treat these conditions should become more proficient in the use of otoscope and ear speculum.
4. A more thorough search for disease in the ear should be made in the upper respiratory infections, especially in children.
5. Patients who have placed confidence in us may reasonably expect us to be thorough in our search for the cause of disease, when it is so vital to their comfort and health.
6. If any doubt exists in the mind of the physician who is called to treat these cases, he should not hesitate to seek the services of one who is competent to give him the help he needs.

CEREBRO SPINAL FEVER *

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C. W. BIXLER, M.D.,
ERIE

Recent years have emphasized the need of an acumen of early recognition of certain diseases that invade the communities of our country, in their seasonal activity, that the morbidity and especially the mortality of these may be lessened.

There are two outstanding maladies that have appeared more or less for the past few years, and probably longer, frequently unrecognized, or recognized when a fatal termination is inevitable. Botulism and cerebro-spinal fever are evidently on the increase both endemically and epidemically.

The favorable termination of some of these cases has manifestly emphasized that a happy termination rests chiefly in the early recognition of the malady with the application of modern heroic treatment as outlined by those who are considered authorities on the subjects. Bearing in mind, constantly, the possible contact, and that infected areas are around us, with a knowledge of the class-

*Presented to Boulder County Medical Society, Feb. 14, 1929.

ical symptoms of the disease and the variations that may occur, cerebro-spinal fever will be less frequently overlooked and the morbidity and mortality, by recognized methods of treatment, can and will be greatly lessened.

The purpose of this paper is to refresh the memory with the salient features of the disease, viz.: the source of the infection, the bacteriology, the habitat, the method of invasion into the meninges, the character of the spinal fluid, the treatment, the prognosis and the pathology. In that the germ is dependent upon some animal fluid for propagation, the source of infection probably exists in human carriers, who disseminate the infection. As this gains in virulence from time to time of the media become receptive to cause activity, sporadic and epidemic outbreaks occur.

Bacteriology: Oblong or kidney shaped cocci arranged in pairs with their flat sides facing each other, are usually found in the polynuclear cells, but not always. Predominance of free cocci is considered a bad omen. The meningococcus is a Gram-negative diplococcus; its habitat the nasopharynx. Its pathogenic habitat is in the meninges. Invasion is not by direct extension, due to anatomical lymph and serous cavity closure around the brain. The proven method of extension is through the blood stream. Meningococci do not multiply in the blood stream, but seek their pathogenic habitat in the meninges. This is the only pathogenic bacterium that can invade the meninges and not cause 100 per cent mortality.

The spinal fluid may be clear, but is usually cloudy with polynuclear leucocytes twenty to hundrds, with organisms intracellular and few extra-cellular. A sterile fluid occurs frequently in the beginning and symptoms still warrant radical treatment. A predominance of extra-cellular organisms indicates a bad prognosis. A turbid fluid with no organisms is strong evidence of meningococci infection.

Other bacteria as staphylo, strepto or pneumococci are easily found when present. T. B. infection gives a turbid fluid sometimes and a differential test for albumen and globulin to distinguish between T. B. and meningococci infection may become necessary.

Blood: Blood cultures are obtained in severe cases. Polynuclear leucocytes will be as high as 15000 in two-thirds of cases. Not much stress can be laid on W. B. C. count. The place of septicemia is an unsettled question. It is really a prodromal state before the usual meningitis. Percentages of mortality in cases giving positive and negative blood cultures are about equal.

Manner of Spread: There are cases with no available evidence of direct contact. Physicians, nurses and attendants seldom become infected; it is rare to have more than one case in a single family, although many may be infected.

If the prevalence is, as stated by Tice, "25 per 100,000 non-epidemic," the question arises of whether rigid quarantine is a futile procedure. The seasonal exacerbations occur more in the late winter and spring months, which does not strictly hold true in this country. More frequently attacked are youth, males more than females, due partly to more strenuous activity and subsequent fatigue and crowded assemblages to which they are subjected.

Symptoms: The onset is sudden, with a doubtful premonitory phase, which is usually evident in other types of meningitis: fever, stiffness of neck, headache, mental clouding, photophobia, leucocytosis that is not dependable, herpes and hemorrhagic eruption in about 50 per cent of the cases of petechial or purpuric type not disappearing on pressure. Brundiski's, Kernig's, and other reflexes are present to aid in the assumption that there is meningeal irritation present.

Treatment: With varied symptoms or aggravated symptoms the first step is to drain the spinal canal or cisterna magna, with serum at hand for immediate injection.

It has been stated that under the prevailing conditions the more punctures made the lower the mortality. A single puncture may not clinch the diagnosis ,for the fluid may remain sterile in the early cases. The injection of the serum does not depend upon the clearness or cloudiness of the fluid. Neither does the absence of the organism in a turbid

fluid restrict its use, but strongly favors the evidence of meningococci infection.

Pneumococci, staphylococci or streptococci are all easily found if present, and even T. B. fluid is sometimes turbid. Fluid under pressure, cloudy, with increased cell count from twenty to hundreds and presence of the diplococci settles the mode of attack positively. Yet, to be in advance of the presentation of the aggravated symptoms, the serum should be used, both intra-spinally and intra-venously, followed by elevation of the foot of the bed, and repeated in eight to twelve hours intervals until fluid is free of meningococci or for four days at least. The drainage of the meningeal spaces no doubt has some virtue. Lavage of the spinal space is considered more dangerous than beneficial. The intravenous use of serum in conjunction with the intraspinal keeps the antibody content of the blood stable for the battle to be waged in the meninges, and to aid in overcoming the septicemia. The symptomatic treatment consists in hospitalization, quiet, sedatives, liberal diet, catheterization (often needed) and elimination.

Contact with the prostrate patient is a possible, yet remote, danger to those attending. Care should be exercised in handling all cases whether epidemic or sporadic; all excretions should be disinfected and hands frequently and thoroughly cleansed. In that more danger lies in the active carrier, people should be warned to avoid exposure and fatigue, the local health officer informed, and general precautions taken for the best results.

Prognosis: It has been proven that early diagnosis and early treatment with serum and good technique lower the mortality. Meningitis treated without serum is more dangerous than diphtheria treated without antitoxin. With serum treatment the paralysis and mental deteriorations are fewer, especially the complication of deafness. Statistics show that the mortality is usually greater in individuals under 2 years and over 20 years of age. Previous to the serum treatment the mortality ranged from 58 to 100 per cent. Sporadic cases have a lower mortality than those in the beginning of an epidemic. Flexner reports a mortality in 1294 serum treated cases of 18.1 per cent in which the serum was used during the first three days, 27.2 per cent for those in which it was begun on the fourth day to the seventh day, and 36.5 per cent for those in which serum was first given after the seventh day.

Pathology: The earliest anatomical change is hyperaemia of the pia and arachnoid over brain and cord. Some clouding and edema of these tissues next appear, and faint yellow patches may be visible in places. These are infiltrations of the polynuclear leucocytes. Pus follows to become fibro purulent and adhesions form and meninges thicken. The exudate is largely pus cells, but lymphoid and plasma cells are found. Choroid vessels are injected. If pus blocks the foramans of Majendie and Luschka, or adhesions form around the Foramen Magnum obstructive hydrocephalus follows. The meningococcus also gives rise to broncho pneumonia, dense enough at times to resemble lobar pneumonia. The spleen is enlarged, but not as markedly as in other infectious diseases.

The cases coming under our observation, many of whom were late in getting to us, verify the findings by others; viz., age, sex, absence of organisms, character of fluid, abrupt ending, infrequency of purpuric spots and high mortality. They are all proven cases.

Summary of Cases—Longmont Hospital

Age	Sex	Meningococcus	Fluid	Purpura	Mortality
64	Male	Absent	Cloudy	Present	Died
31	Male	Present	Cloudy	Present	Recovered
23	Female	Present	Cloudy	Absent	Died
23	Male	Present	Cloudy	Absent	Died
12	Male	Present	Cloudy	Absent	Recovered
12	Female	Present	Cloudy	Absent	Died
47	Male	Absent	Cloudy	Absent	Died

C. W. Bixler's Private Cases

a. Sex—Male.
Age 4 yrs.
Spinal Fluid positive.
Rash—not found.
Serum intra spinal, four times. One dose of serum in gluteal muscle.
Additional observation punctures—two.
Morbidity—loss of hearing before patient seen.
Otherwise normal.

b. Sex—Female.
Age—10 yrs.
Spinal fluid—positive.
Rash—scanty.

Serum treatments: Spinal—seven; muscular—one.
Observation punctures—three. No morbidity.

c. Sex—Female.
Age—4 yrs.
Spinal fluid—positive.
Rash—very profuse.
Serum treatments: Spinal—seven; intra muscular—one.
Observation punctures—two.
No morbidity.

d. Sex—Male.
Age—2 mos.
Spinal fluid—positive.
Rash—positive.
Serum treatments: Spinal—five; intra muscular—one.
Observation punctures—one.
No morbidity.

e. Sex—Female.
Age—8 mos.
Spinal fluid—not obtained. Died in office before we could do a lumbar puncture.
Rash—purpuric in type. Many blebs were one inch in diameter. No treatment given.

f. Sex—Male.
Age—16 yrs.
Spinal fluid—positive.
Rash—positive.
Serum treatments: Spinal—eight; intravenous—one.
Observation punctures—two.
Morbidity—loss of hearing the second day.

g. Sex—Male.
Age—10 yrs.
Spinal fluid—positive.
Serum treatments: Spinal—five; intra muscular—one.
Observation punctures—one.
No morbidity.

h. Sex—Female.
Age—36.
Spinal Fluid—positive.
Rash—positive.
Serum treatments: One intravenous—four spinal.
Observation punctures.
No morbidity.

1. Sex—Female.
Age—26.
Spinal fluid—negative. Cell count 157.
Serum treatments: Intra spinal—two; intra venous—90 c. c. as the first dose.
Rash—positive.
No morbidity.
This case was the nurse who cared for three other cases. The intravenous treatment was given early.

j. Sex—Female.
Age—five yrs.
Spinal fluid—positive.
Rash—negative.
Serum treatments: Intra spinal—three; intra muscular—one.
Observation punctures—Three.
No morbidity.

k. Sex—Male.
Age—35 yrs.
Spinal fluid—positive.
Rash—positive.
Serum treatments: Do not know how many were given as we gave the first dose and then patient sent to isolation hospital where he recovered.
No morbidity.
Above case was seen in consultation for diagnosis.

l. Sex—Female.
Age—10 yrs.
Spinal fluid—positive.
Rash—positive.
Serum treatments: Intra spinal—four; intra muscular—one.
Hospital records show that this patient was thought to be well and spinal punctures omitted. Relapsed after four days and died. Seen in consultation for diagnosis. Sent to isolation hospital.

m. Sex—Female.
Age—8 mos.
Spinal fluid—negative.
Rash—positive—large blebs — fulminating type.
Serum treatment: One intra spinal; one intra muscular.
This baby died in 15 minutes after treatment. Mother was told baby was dying and that the treatment would do no good, but she insisted that the treatment be given. This baby's brother was taken sick two days later and lived 36 hours.

n. Sex—Female.
Age—8 mos.
Spinal fluid—positive.
Rash—positive.
Serum treatments: One treatment at the office intra spinal and one intra muscular, when the baby was sent to the isolation hospital where it died.

NEWS NOTES

AMERICAN SOCIETY OF ORTHODONTISTS TO MEET AT ESTES PARK

The twenty-eighth annual meeting of the American Society of Orthodontists will be held July 15th to 20th, inclusive, at the Stanley Hotel in Estes Park.

A cordial invitation is extended to all the members of the Denver County Medical Society. On Wednesday, July 17th, there will be several papers which will be of special interest to the members of the medical profession.

Symposium on Nutrition

9:10—Nutrition in Its Relation to Dentition and Bone Growth, McKim Marriott, M.D., Dean and Professor of Pediatrics, Washington University School of Medicine, and Physician in Chief, St. Louis, Mo.

Bone Atrophy, J. Albert Key, M.D., Director of Research Department of Shriners' Hospitals for Crippled Children, St. Louis, Mo.

2:45—A Study of the Maxillary Sinuses by Repeated Radiographs from Birth to Seven Years, W. Walter Wasson, M.D., Denver.

PROGRAM

Fifty-Ninth Annual Session

COLORADO STATE MEDICAL SOCIETY

Greeley, Colo.

TUESDAY MORNING, SEPTEMBER 3

1. **"Exploration and Certain Operations on the Female Pelvis through Cholecystectomy Incisions."**

C. E. TENNANT, M.D.

"When operation is indicated in the upper right quadrant, and there also exists a uterine descensus requiring operative interference, the right rectus incision through the peritoneum may be used to further a uterine suspension by drawing the round ligaments through simple puncture wounds in the abdominal wall, using but the one intraperitoneal incision. The reverse may be followed when in the course of a median incision for pelvic work choelithiasis is discovered and a gall-bladder drainage done through a stab wound in the upper right quadrant. The first operation is illustrated by a moving picture."

Discussion opened by: Dr. C. B. Ingraham, M.D., and Leonard Freeman, M.D.

2. **"Uterine Dysfunction in Middle Age."**

J. A. MATLACK, M. D. Longmont.

"Large proportion of women afflicted with menstrual abnormalities after forty. Important to make accurate diagnosis of cause of abnormal bleeding. Classification of pathological conditions likely to be found. Treatment is either by surgery or radiotherapy, depending on diagnosis."

Discussion opened by: G. E. Cheley, M.D., and W. W. WASSON, M.D.

3. **"The Newer Physiology of Reproduction."**

T. MITCHELL BURNS, M.D.

"The relation of estrus in the lower animals to menstruation in the primates. The time of ovulation and the maximal time for conception. The cause of sex and sexual reversal."

Discussion opened by: R. W. Whitehead, M.D., and R. S. Chamberlain, M.D.

4. **"A Combined Method of Treatment of Carcinoma of the Cervix."**

AUBREY H. WILLIAMS, M.D., HARMON P. BRANDENBURG, M.D., and E. W. PERROTT, M.D.

"Brief review of treatment of carcinoma of cervix—earliest treatment palliative—operative with advent of aseptic surgery. The use of radium and the development of treatment with the high voltage x-ray. Today there exists no one treatment. Experience with operation, radium, x-ray and cautery has led to a combined treatment. Method of treatment—report of cases, advantages and disadvantages, summary and conclusions. Theory and technique of radium and x-ray treatment."

Discussion opened by Cuthbert Powell, M. D., and Sanford Withers, M.D.

5. **"Consideration of Some of the Newer Aspects of Carcinoma."**

H. E. ROBERTSON, M.D., MAYO CLINIC.

"Discussion of the inhibitory influences in carcinomatous proliferation. The nature of the "urge" to abnormal growth. The cancer diathesis. The indications for the treatment of carcinoma patients in the light of recent knowledge."

WEDNESDAY MORNING, SEPT. 4, 1929

1. **"Lipiodol; Its Place in the Modern Diagnosis of Sinus Pathology."**

HARRY WHITAKER, M.D.

"1. History. Preparations of Iodized oil available.

How introduced into the sinus. The Proetz method.

Position of head when x-rayed.

2. Sinuses. Anatomical considerations. Hypertrophies.

Deviation of septum and middle turbinates. The results of growth and injuries.

3. X-ray films showing sinuses outlined by Lipiodol shadows.

Discussion opened by: Kenneth Allen, M.D., and Harry L. Baum, M.D.

2. **"The Differentiation of Intra-abdominal Lesions from Intercostal Neuralgia of the Abdominal Wall."**

JOHN BERTON CARNETT, M.D., PHILADELPHIA, PROFESSOR OF SURGERY, UNIVERSITY OF PENNSYLVANIA.

"The lower seven intercostal and first lumbar nerves constitute the entire nerve supply of the anterior abdominal wall. Irritative lesions of these nerves are exceedingly common and cause pain and tenderness of the anterior abdominal parietes. Parietal pain is far more frequent than intra-abdominal pain. Mackenzie's theory that skin hyperesthesia indicates an intra-abdominal lesion is entirely erroneous. The common failure to recognize the parietal location of pain and tenderness leads to futile laporotomies. Parietal tenderness is disclosed by vigorous palpation while the abdominal muscles are held as tense as possible and by pinching of skin and fat. Parietal neuralgia simulates many of the intra-

abdominal, renal and pelvic lesions. Discussion of causes and treatment."

Discussion opened by: C. E. Tennant, M.D., and George Curfman, M.D., Salida.

3. **"Action of the Lipoids from the Tubercle Bacillus in Producing Tubercles."**

FLORENCE SABIN, M.D., NEW YORK CITY. From the Laboratories of the Rockefeller Institute for Medical Research, New York.

"This work is a part of a plan for co-operative research on tuberculosis, organized by the Research Committee of the National Tuberculosis Association, of which William Charles White, Bureau of Hygiene, Washington, D. C., is chairman. The chemical analysis of the lipoids from the tubercle bacillus, human strain H37, has been made by Dr. R. J. Anderson, Sterling Chemical Laboratory, Yale University, New Haven, and the biological testing of the products has been done by Dr. Charles A. Doan and Dr. Claude E. Forkner and the writer.

We received four lipoidal fractions, a phosphatid, a purified wax, a soft wax and glycerides. The first three fractions produced epitheloid cells and giant cells of the Langhans type, both characteristic of the lesions of the disease tuberculosis. The primary glycerides have not yet been tested. Each of these four fractions has been split into simpler substances by Dr. Anderson and each has yielded one or more liquid saturated fatty acids, hitherto unknown. These fatty acids, when introduced into the tissues, give the lesions similar to those seen in tuberculosis; none of the other split products give tubercles, so that the four primary lipoid fractions give tubercles in proportion to their content of these fatty acids. The work has involved the testing of progressively less complex fractions on the one hand and products of increasing purity on the other.

4. **"Recent Studies in Epilepsy."**

W. G. LENNOX, M.D., NEWTON, MASS. Research Fellow in Neuropathology, Harvard Medical School.

"Epilepsy is considered a symptom. As with the study of any symptom—headaches for example—there are two main avenues of approach. First, the detailed examination of patients to determine the individual abnormalities which might directly or indirectly cause seizures. Study so far has failed to disclose any single abnormality common to all patients having seizures. The second approach is the study of the physiology of seizures; the influence of conditions which tend either to precipitate or to retard their appearance. Changes in the acid base equilibrium of the body, in the oxygenation of tissues, in the concentration of certain chemical constitutents definitely modify the frequency of seizures. Certain therapeutic applications of these observations are suggested.

5. **"Primary Pneumococcic Peritonitis in Childhood with Case Reports."**

EMANUEL FRIEDMAN, M.D.

"Condition is frequently overlooked because of lack of familiarity. First recognized as an entity in 1885. It is almost exclusively an affection of childhood; most frequent between three and seven years; more apt to occur in the female. Route of invasion is probably the genital tract. Onset is abrupt with high fever, severe abdominal pain, persistent vomiting, diarrhoea and marked prostration. At operation, greenish yellow, odorless exudate found, most marked in pelvis. Usually high leukocytosis with correspondingly high polymorphonucleosis. Diagnosis not difficult. To be differentiated from appendicitis, ileocolitis, pneumonia and meningitis.

Discussion opened by: R. P. Forbes, M.D., and George B. Packard, Jr., M.D.

WEDNESDAY AFTERNOON

1. **President's Address**

WILLIAM SENGER, M.D., PUEBLO.

2. **"Air Embolism as a Complication in Artificial Pneumothorax Therapy."**

E. H. BRUNS, LT. COL. M. C. U. S. A.

3. **"Harvey Film."**

GERALD B. WEBB, M.D., Colorado Springs.

"Prepared by Lewis and Dale for the tercentenary of Harvey, held by the Royal College of Physicians in London, 1928. All the experiments by which Harvey discovered the circulation of the blood are depicted."

4. **"Symposium on Syphilis." This Symposium will consist of six ten-minute papers. General discussion will be held at the close of the Symposium.**

1. "General Clinical Aspects of Syphilis." A. J. MARKLEY, M.D.
2. "Laboratory Aids to the Diagnosis of Syphilis." PHILIP HILLKOWITZ, M.D.
3. "Treatment of Early Syphilis." J. B. DAVIS, M.D.
4. "Clinical Types of Neurosyphilis." G. S. JOHNSON, M.D.
5. "Pathology of Cardiovascular Syphilis." W. S. DENNIS, M.D.
6. "Syphilis of the Eye." W. M. BANE, M.D.

Discussion opened by: L. W. Bortree, M.D., Colorado Springs; H. T. Low, Pueblo, Colo.

THURSDAY MORNING, SEPT. 5, 1929

1. **"Causes and Prevention of Blindness in Colorado."**

EDWARD JACKSON, M.D.

"The great calamity or handicap of blindness can be avoided in many cases if its possible causes are recognized and rightly dealt with by physicians and the threatened papatients. Even the community must do something for the prevention of blindness. Cases vary with the time, races, locality and occupation. Practical lessons are deduced from more than one thousand Colorado cases.

Discussion opened by Dr. W. H. Crisp, M.D., and Dr. J. J. Pattee, M.D., Pueblo.

2. "Diagnosis and Treatment of Wood Tick Infection." Illustrated with lantern slides.

F. E. BECKER. M.D.
Pathological Dept., University of Colorado.

"The Life cycle of the tick. Report of typical case of spotted fever. Discussion of atypical cases of tick fever. Report of experimental work. Local infection from tick bite. Tularemia following tick bite. Ascending paralysis following tick bite."

Discussion opened by: C. S. Faust, M.D., Colorado Springs, and M. A. Spangelberger, M.D.

3. "Symposium on Acidosis."

This Symposium will consist of four fifteen-minute papers. The summary and general discussion with clinical applications will be made by Dr. Alexis Hartmann, after which the subject will be open to general discussion.

1. "Bio-chemical Considerations."
ROBERT LEWIS, M.D.
Medical Dept. University of Colorado.
2. "Pediatric Considerations."
ELMER L. TIMMONS, M.D.
Colorado Springs.
3. "Surgical Considerations."
W. P. McCROSSIN, JR., M.D.
Colorado Springs.
4. "General Medical Considerations."
F. M. HELLER, M.D.
Pueblo.
5. "Address on Acidosis."
ALEXIS F. HARTMANN, M.D.
Washington University, St. Louis, Mo.

Dr. Hartmann will include a discussion of alkolosis in his address and will give a detailed report of his study of the clinical changes taking place in the body as the result of such conditions as vomiting, diarrhea, dehydration and oliguria (as seen particularly in pyloric stenosis, intestinal obstruction, severe diarrhea from enteral and parenteral causes) and nephritis in its various forms, diabetes and circulatory failure. He will also discuss new methods of treatment of acidosis and alkalosis.

THURSDAY AFTERNOON

1. Address—"Food Allergy."

PROFESSOR CHARLES RICHET, PARIS.

2. "Congenital Clubfoot with Particular Reference to the Treatment."

ROBERT G. PACKARD, M.D., and HAMILTON I. BARNARD, M.D.

"Definition, Etiology: Bohm's theory of aplasia. Pathology with structural changes. Symptomatology; different types and degrees of deformity. Differential diagnosis from deformities due to nerve lesions. Treatment; review of various methods. Importance of early care and necessity of anaesthesia at time of correction. Neglected cases. Photographs of cases before and after treatment. Conclusions."

Discussion opened by: Henry W. Wilcox, M.,D., and Atha Thomas, M.D.

3. "Massive Atelectasis of the Lung."

CLOUGH T. BURNETT, M.D.

"Massive collapse of the lung occurs with sufficient frequency and is obscure enough in its manifestations to warrant attention. Early recognition will usually prevent other pulmonary complications. Cases will be presented with lantern slides."

Discussion opened by: O. M. Gilbert, M. D., Boulder; A. M. Forster, M. D., Colorado Springs.

4. "Physician's Liability Insurance."

PAUL CLARK, ATTORNEY.
Aetna Life Insurance Company.

HOUSE OF DELEGATES, 1929

Constituent Society	*Delegates*	*Alternates*
Arapahoe	Not reported	
Boulder	W. K. Reed	O. M. Gilbert
"	C. E. Sidwell	R. H. Dietmeier
Chaffee	G. H. Curfman	G. W. Larimer
Delta	A. C. McClanahan	F. A. Erich L. A. Hick
Denver	W. H. Halley	L. V. Sams
"	L. W. Frank	E. F. Dean
"	C. H. Darrow	G. M. Blickensderfer
"	H. S. Finney	G. W. Miel
"	C. F. Kemper	Charles Jaeger
"	G. A. Moleen	C. T. Burnett
"	J. M. Shields	S. D. Van Meter
"	J. A. Philpott	W. M. Bane
"	W. Finnoff	A. J. Chisholm
"	T. E. Beyer	M. Katzman
"	J. S. Bouslog	Henry Wilcox
"	J. G. Ryan	W. B. Yegge
"	R. P. Forbes	W. W. King
"	Frank Rogers	Philip Hillkowitz
"	H. R. McKeen	H. G. Garwood
"	Harry Baum	B. B. Jaffa
"	Edward Delehanty	G. E. Cheley
"	W. J. Robb	Philip Work
"	C. J. Lowen	R. G. Smith
"	Hugh Taylor	R. C. Price
"	D. H. O'Rourke	I. D. Bronfin
"	H. I. Barnard	P. W. Whiteley
"	G. Heusinkveld	Edward Dean
El Paso	F. A. Faust	W. A. Campbell, Jr.
"	O. R. Gillette	T. J. Evans
"	Z. H. McClanahan	H. W. Woodward
"	A. C. Holland	J. B. Crouch
"	C. E. Harris	P. O. Hanford
Fremont	C. H. Graves	Royal C. Adkinson
Garfield	R. B. Porter	W. R. Tubbs
Huerfano	G. M. Noonan	J. R. Fowler
Kit Carson	W. L. McBride	H. L. Williams
Lake	F. N. Cochems	A. J. Bender
Larimer	P. J. McHugh	L. A. Joslyn
"	W. B. Hardesty	T. C. Taylor
Las Animas	John R. Espey	Ben Beshoar
Mesa	Not reported	
Montrose	C. G. Brethower	C. E. Lockwood
Morgan	Not reported	
N.E. Colorado	J. W. Kinzie	W. E. Hays
N.W. Colorado	B. M. Bailey	E. L. Morrow
Otero	C. E. Morse	George Sorensen
Prowers	L. E. Likes	N. M. Burnett
Pueblo	F. M. Heller	R. H. Finney
"	George Myers	George E. Rice
"	George P. Pipkin	Atha Thomas
"	H. T. Low	C. N. Caldwell
San Juan	A. L. Burnett	D. E. Maynard
San Luis Valley	Sidney Anderson	C. A. Gorlin
Weld	N. A. Madler H. W. Averill	J. A. Weaver

THE FIFTY-NINTH ANNUAL SESSION IN GREELEY

Since you so graciously accepted the invitation of the Weld County Medical Society to hold your next annual session in Greeley, we hope that all who possibly can will attend this meeting. The meetings of the House of Delegates, as well as the scientific sessions of September 3, 4 and 5, will be held in the Little Theater of the Colorado State Teachers' College. Located on the second floor of the Administration Building, you will find this assembly room ideal, away from noises attending the commercial and scientific exhibits, which will be housed on the first floor of the building. The scientific program offered you this year is an exceptionally good done, Dr. Waring and his committee having spent many hours in its perfection.

You will find, however, that attendance at this meeting will not be all work; that your hours of labor will be sufficiently interspersed with hours of play. Golf at the Country Club, swimming in the pool in the gymnasium of the College, athletic events, luncheons, dinners, and dancing—all on the most beautiful campus in the state.

And the ladies? Why certainly. They are included in all of the aforementioned events, besides additional entertainment which will be provided for them by the local chapter of the auxiliary.

As to housing facilities, you need not worry. While hotel accommodations are limited, the college dormitories are available for those who cannot be accommodated at the hotels. Each room in the dormitory is provided with sleeping accommodations for two, with bath and toilet facilities on each floor. The rates at the hotels are $1.50 to $3.00 for one, and $2.50 to $5.00 for two persons. At the dormitories $1.50 per person for one night, or $2.50 for two nights, if reservation is made in advance. Reservations should be made, if at all possible, in advance of attendance at the meeting. Requests may be addressed to the undersigned.

N. A. MADLER, M.D.,
Chairman, Local Committee on Arrangements.

RICHARD WARREN CORWIN

Atha Thomas, M.D.

The medical profession of Colorado lost one of its most eminent members last month when Richard Warren Corwin passed away at his home at Minnequa Hospital, Pueblo, on June 19.

To write an appreciation of Dr. Corwin is literally beyond the ability of one man to do adequately. Dr. Corwin was much more than an able surgeon, more than a hospital executive of national reputation. For though he was a leader in these, his chosen vocations, he was big and broad enough to include in his long life an enviable succession of achievements in other lines.

Dr. Corwin was born in 1852, a native of New York. Educated in the public schools, he received his academic degree from Cornell University. He then attended the University of Michigan Medical College and was graduated with the M.D. degree in 1878. He obtained his first license to practice in the state of Illinois, and in 1881 he moved to Colorado, was licensed in this state, and immediately became chief surgeon for the Colorado Fuel & Iron Company, the position which he occupied until his death. In 1900 he made a tour to visit the principal industrial hospitals of the United States and Europe, preparatory to supervising establishment of an institution for the C. F. & I. Minnequa Hospital was begun under his direction in 1901, and though his later accomplishments were many, Dr. Corwin always was more proud of that institution than any other of his works.

Dr. Corwin was a former president of the Pueblo County Medical Society and of the Colorado State Medical Society (1901-1902). He was an honorary member of the Medical Society of the City and County of Denver. He was a charter member of the American College of Surgeons, a fellow of the American Medical Association, past president of the Association of Railway Surgeons and past president of the Colorado State Hospital Association. He also was a member of the Western Surgical Association, the American Eugenic Society, the American Archeological Association, and the National Education Association. He had for many years been active in the work of the American Red Cross.

He was a world-wide traveler and as such developed the hobby of collecting rare curios, from which he built up a museum at Minnequa Hospital for the education and entertainment of patients. He took an unusually active interest in the civic affairs of his community, and had the honor of serving longer on a city board of education than any other man in the United States. He was a past president of the Pueblo Board of Education.

Dr. Corwin served in the Colorado National Guard until 1904, when he retired after gaining the rank of surgeon general. During the World War he served overseas for the Rockefeller Institute and was decorated by Queen Elizabeth of Belgium for his part in the development of the Carrell-Dakin treatment.

He was also active in fraternal affairs, had been grand commander of Knights Templar in Colorado, and had been awarded the 33rd degree of the Masonic lodge.

Dr. Corwin never married, but always kept close family relations with his nephews and nieces. To these the profession extends its sympathy in a mutual loss.

THE COLORADO STATE MEDICAL SOCIETY
(Incorporated November 1, 1888.)

Next Annual Meeting, September 3, 4, 5, 1929.

OFFICERS 1928-1929

President, Samuel B. Childs, Denver.

President-elect, William Senger, Pueblo.

Vice-Presidents, 1st, W. M. Shultz, Central City; 2nd, T. R. Knowles, Colorado Springs; 3rd, F. E. Willett, Steamboat Springs; 4th, O. P. Shippey, Saguache.

Secretary, F. B. Stephenson, Denver.

Executive Secretary, Mr. Harvey T. Sethman, 466 Metropolitan Bldg., Denver; Telephone Keystone 0870.

Treasurer, L. W. Bortree, Colorado Springs.

Delegates to the American Medical Association: Senior, O. M. Gilbert, Boulder, term expires 1929; Alternate, B. B. Blotz, Rocky Ford, term expires 1929. Junior, J. W. Amesse, Denver, term expires 1930; Alternate, L. H. McKinnie, Colorado Springs, term expires 1930.

Councilors:

		Term expires
District 1.	Ella A. Mead, Greeley	1930
District 2.	G. P. Lingenfelter, Denver	1929
District 3.	Geo. D. Andrews, Walsenburg	1933
District 4.	W. W. Crook, Glenwood Springs	1931
District 5.	A. W. Robbins, Durango	1932

Constituent Societies, Times of Meeting, Secretaries

Arapahoe County—Last Monday of each month; secretary, B. G. Carson, Englewood.

Boulder County—Second Thursday; secretary, Margaret Johnson, Boulder.

Chaffee County—First Tuesday of each month; secretary, G. W. Larimer, Salida.

Delta County—Last Friday of each month; secretary, Lawrence L. Hick, Delta.

Denver County—First and third Tuesday of each month; secretary, C. H. Darrow.

El Paso County—Second Wednesday of each month; Secy., W. A. Campbell, Jr., Colo. Springs.

Fremont County—Fourth Monday of each month; secretary, R. Adkinson, Florence.

Garfield County—Last Thursday of each month; secretary, R. B. Porter, Glenwood Springs, Colo.

Huerfano County—Third Thursday of each month; secretary, J. F. Baca, Walsenburg, Colo.

Kit Carson County—Quarterly, first Monday of December, March, June and September; secretary. Wm. L. McBride, Seibert, Colo.

Lake County—First Thursday of each month; secretary, J. C. Strong, Leadville.

Larimer County—First Wednesday of each month; secretary, Lowell Little, Fort Collins.

Las Animas County—First Friday of each month; secretary, M. C. Albi, Trinidad.

Mesa County—First Tuesday of each month; secretary, A. G. Taylor, Grand Junction.

Montrose County—First Thursday of each month; secretary, F. G. Didrickson, Montrose.

Morgan County—Time of meeting (not reported); secretary, H. M. Hawthorn, Weldona.

Northeast Colorado—Second Thursday in each month; secretary, E. P. Hummel, Sterling.

Northwestern Colorado—Second Thursday of each month; secretary, F. J. Blackmer, Steamboat Springs.

Otero County—Second Thursday of each month; secretary, G. C. Gardner, La Junta.

Prowers County—First Tuesday of each quarter; secretary, Geo. S. Williams. Lamar, Colo.

Pueblo County—First and third Tuesday of each month; secretary, A. H. Merriman, Pueblo.

San Juan Medical—Second Saturday, January, April, July and October; secretary, H. A. Lingenfelter. Durango.

San Luis Valley—Time of meeting (not reported); secretary, Sidney Anderson, Alamosa.

Weld County—Third Monday of each month; secretary, Florence Fezer, Greeley, Colo.

STANDING AND SPECIAL COMMITTEES

Committee on Scientific Program: J. J. Waring, chairman, Denver; E. D. Downing, Woodmen; Frank R. Spencer, Boulder.

Committee on Credentials: F. B. Stephenson, chairman, Denver; John P. McDonough, Gunnison; George M. Noonan, Walsenburg.

Committee on Public Policy: C. F. Kemper, chairman, Denver; Edward Jackson, Denver; Henry Sewall, Denver; John R. Espey, Trinidad; Edward F. Dean, Denver; N. S. Madler, Greeley; Crum Epler, Pueblo.

Committee on Publications: Charles S. Elder, chairman, Denver; C. S. Bluemel, Denver; George A. Moleen, Denver.

Auditing Committee: W. K. Reed, chairman, Boulder; O. P. Shippey, Saguache; Chas. J. Lowen, Denver.

Committee on Necrology: Philip Hillkowitz, chairman, Denver; W. B. Hardesty, Berthoud; C. H. Graves, Canon City.

Committee on Medical Education: Maurice Rees, chairman, Denver; L. H. McKinnie, Colorado Springs; Chas. N. Meader, Denver.

Committee on Social Medicine: R. P. Forbes, chairman, Denver; J. R. McDonald, Jr., Denver; B. B. Blotz, Rocky Ford.

Committee on Medical Literature: W. A. Jayne, chairman, Denver; Gerald B. Webb, Colorado Springs; A. J. Markley, Denver.

Committee on Hospitals: Maurice Rees, chairman, Denver; O. S. Fowler, Denver; C. O. Giese, Colorado Springs.

Committee on Military Affairs: Colonel Paul C. Hutton, chairman, Denver; George P. Lingenfelter, Denver; John Bouslog, Denver.

Committee on Mental Hygiene: F. B. Ebaugh, chairman, Denver; C. S. Bluemel, Denver; Edward Delehanty, Denver; Philip Work, Denver; H. A. LaMoure, Pueblo; Frank T. Stevens, Colorado Springs.

Committee on Periodic Health Examination: C. E. Harris, chairman, Woodmen; F. M. Heller. Pueblo; J. B. Crouch, Colorado Springs.

Committee on Co-operation With State Pharmacal Association: H. W. Stuver, chairman, Denver; A. F. Erick, Delta; M. D. Brown, Denver.

Committee on Cost of Medical Care: Maurice Rees, chairman, Denver; James J. Waring, Denver; Frank R. Spencer, Boulder; P. O. Hanford, Colorado Springs; George H. Curfman, Salida.

Committee on Industrial Commission Fees: Frank W. Kenney, chairman, Denver; F. B. Stephenson, Denver; T. E. Beyer, Denver.

Committee on Selection of An Executive Secretary: The President, Secretary and Treasurer of the Society with the assistance of such members of the Society as the President deems advisable.

Committee on Finance: W. A. Jayne, chairman, Denver; C. F. Hegner, Denver; L. W. Bortree, Colorado Springs.

Curator of Exhibits: E. D. Downing, Woodmen.

Committee on Local Arrangements: N. A. Madler, chairman, Greeley, Colo.; C. B. Dyde, Greeley, Colo.; E. W. Knowles, Greeley, Colo.; W. F. Spalding, Greeley, Colo.

WYOMING MEDICINE

President, F. A. Mills, M.D., Powell — First Vice President, C. W. Jeffrey, Rawlins
President-Elect, J. L. Linn, M.D., Lander
Secretary, Earl Whedon, M.D., Sheridan — Treasurer, Evald Olson, M.D., Lovell
Delegate to the A. M. A., Geo. P. Johnston, M.D., Cheyenne — Alternate, J. H. Holland, Evanston
Councilor, H. L. Harvey, Casper
Member of Medical Defense, Earl Whedon, M.D., Sheridan
Fred Horton, M.D., New Castle — George L. Strader, M.D., Cheyenne

EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

NEWS NOTES AND COMMENT

AND IT DID HAPPEN

Through a misunderstanding all of the material supplied for the June number of Colorado Medicine so far as the Wyoming part of that issue was concerned was not published.

In as much as the issue was the annual convention number, we feel deeply the loss.

However, our programs were mailed out as soon as possible and we apologize to the members of the Colorado, Idaho, Nebraska, Utah and Montana societies and assure them that we were not trying to hold our annual meeting like a sulking child off in a corner and not inviting the members of the profession of our sister states to our annual meeting.

Editor Dr. C. F. Kemper was in Europe and he was not responsible in any way for the omission. We expect to publish in the issues following most of the papers read at Casper that all members may enjoy them.

E. W.

The Casper meeting carried out the following program:

Sunday, June 23rd, 8 p. m.—Special smoker prior to convention at Henning Hotel. Ladies will be entertained at the theater by the Natrona County Ladies.

MONDAY, JUNE 24, 1929

8:00 A. M.—Special clinics at the Natrona County Hospital, conducted by members of the Natrona County Medical Society. Announcements will be made at the Henning Hotel, Sunday evening, covering these clinics.

11:00 A. M.—Meeting of the House of Delegates at the Elks's Club.

1:30 P. M.—Convention called to order by President Dr. F. A. Mills, Powell, Wyo.

Address of Welcome by Mayor Baerthel of Casper.

Response for the Society, Dr. C. W. Jeffrey, Rawlins, Wyo.

President's Address: Dr. F. A. Mills, Powell, Wyo.

Paper: "An Important Economic Problem of the Profession," Dr. C. E. Cooper, Denver, Colo.

Discussion.

Paper: "The Doctor's Collection Problem," Dr. Chester E. Harris, Basin, Wyo.

Discussion.

Paper: "The Treatment of Burns," Dr. Victor R. Dacken, Cody, Wyo.

Discussion.

Paper: "X-ray Films and Their Interpretation," Dr. Fred W. Phifer, Wheatland, Wyo.

Discussion.

Paper: "The Annual Registration of Licensed Physicians," Dr. W. H. Hassed, State Health Officer, Cheyenne, Wyo.

Discussion.

7:30 P. M.—Banquet at the Henning Hotel, tendered by the Natrona County Medical Society to all members of the State Society, their ladies and guests.

TUESDAY, JUNE 25, 1929

8:00 A. M.—Clinics at the Natrona County Hospital conducted by members of the Natrona County Medical Society.

10:00 A. M.—Golf games arranged to suit the convenience of the visiting doctors and their ladies.

1:30 P. M.—Elks' Club; Scientific Program Continued:

Paper: "The Surgical Abdomen," Dr. George P. Johnston, Cheyenne, Wyo.

Discussion.

Paper: "An Analysis of Intestinal Obstruction and Its Treatment," Dr. C. A. Roeder, Omaha, Neb.

Discussion.

Paper: "Tuberculosis as Found in Wyoming," Dr. W. D. Gilmore, Superintendent of the Wyoming Tuberculosis Sanatorium, Basin, Wyo.

Discussion.

Paper: "Some Points in Surgery of the Biliory Apparatus," Dr. J. G. Sheldon, Kansas City, Mo.

Discussion.

Paper: "The New Wyoming Lunacy Law," Dr. C. H. Solier, Evanston, Wyo.

Discussion.

DIFFERENTIAL BLOOD COUNTS AND THEIR VALUE

Certain discoveries in medicine seem to follow cycles. Medical minds follow fashions and often times these channels of thought progress along certain lines then go off on a tangent. Later some one points out the discoveries in a certain line and we again go over the same ground and find new meaning to earlier discoveries.

Take the interesting work that was done on blood a few years ago, say fifteen or twenty years back, how enthusiastic many surgeons were on the question of the total white count and its relation to acute infections. They ran wild like a bunch of locoed horses, only to be corraled by the more acute who discovered that the total white count was not the main point. But that there is a definite valuable diagnostic principle which consisted in the relation of the relative percentage of polymorphonuclear to the total white count. That the total white count varies with the resistance of the patient has been proven by a great many observers. The point we wish to emphasize is that there is a valuable chart or semaphore shown in the relationship of the total white cell count to that of the polynuclear cells. That this relationship between the total white blood cell count and the number of polymorphonuclear cells is of great importance in acute surgical conditions is the thing we wish to call to your attention.

The total white count represents the resistance of the individual to a given infection, but the number of polymorphonuclear-cites represent the severity of the infection. It is not a question of totals but a comparison of the percentage or relation of these two factors that is all important. In other words, it is the balance exhibited by these two factors that make the equation. A count of 10,000 white cells of which 75 are polynuclear cells may be considered normal, but a count of only 65 polynuclear cells would be considered a valuable and hopeful prognosis; whereas, a count of 10,000 total whites with a polynuclear count of 90 or more would indicate a very poor resistance and a very severe infection.

It is this relationship that is the important thing to consider and a differential count should always be made in acute or chronic septic conditions or whenever such conditions are suspected with an ascending total white blood cell count if the polynuclear cells increase in the proportion of one to each one thousand of the total white cells, the relationship is normal, but when the number of polynuclear cells is greater than this proportion the prognosis becomes poorer, and means pus or a very severe infection calling for surgical aid. The higher the polynuclear count is above the given proportion the more grave the situation; whereas, the dropping in the polynuclear cells below the above relationship of 10,000 to 75, the more hopeful the outlook.

This is not a mere theory but proved by hundreds and thousands of careful tests and demands our most thoughtful consideration for the lives of our patients and our own satisfaction and reputation. E. W.

Monuments to Physicians

The public places of practically every land are dotted with monuments to soldiers.

If you wanted a picture of a monument of a soldier you could get it in any town, even in any village, but monuments to medical men are few and far between.

Of course, it may be that medical men are not picturesque people. They do not have to dress up in glittering array with clanking ornaments and shining swords, befeathered hats, gleaming epaulets.

But there have been a few, a very few, medical monuments erected and we would like to reproduce pictures of some of them.

There is, of course, the famous monument to Pasteur in Paris, a monument which perpetuates the immortal story of the little shepherd boy whose life was saved by Pasteur.

Up in the little town of Rochester, Minn., there is another medical monument, bearing the name which has made this little town famous—the name of Mayo. It was erected by the present Drs. Mayo, the eminent surgeons, to their father as a tribute to his memory, his life work and his ideals which the sons have carried on.

In a little flower spangled park in the middle of Rochester this monument stands and seated around it any fine summer day one can see literally hundreds of patients on the road to recovery because of the work of the great Mayo Foundation.

And what better place could have been selected for a monument to the elder Mayo?—Patchwork.

THE NEW WYOMING LUNACY LAW

C. H. SOLIER, M.D.,
EVANSTON, WYO.

The physicians of Wyoming will be glad to learn that the last state Legislature enacted new laws which radically modify the procedures in the commitment, parole and discharge of insane patients.

Although our present laws covering these matters have long been subject to the severe criticism of all who are interested in the intelligent and humane treatment of this unfortunate class, repeated efforts to lessen the rigors of the existing system of commitments and to emphasize the medical rather than the legal aspects of insanity have always been unsuccessful. A small but influential body of legislators composed largely of attorneys, has always vigorously protested against the proposition that any one, no matter how insane, could be deprived of liberty without trial by jury. Now the modern conception of mental disease is that its determination is strictly a scientific problem, to be decided primarily by medical men —preferably psychiatrists. The determination as to what extent an insane person should be deprived of his rights and liberties is rightfully a matter of judicial decision to be prescribed by the court after physicians have testified to the nature of the mental disorder and especially after they have fully explained the probable hazards to property and life if the patient be not appropriately restrained.

The outstanding objections to our commitment laws are that a jury must be called in every case, the insane person must be actually present in the court room or must be exhibited to the jury and that in all respects the hearing must be conducted as if the alleged insane person were guilty of some misdemeanor or crime. While most of our judges, in response to an overwhelming public sentiment against such objectionable procedures, have mitigated as far as possible many of the more opprobrious features, they have been unable to entirely eliminate many of the more distressing requirements. A jury of laymen called in to diagnose any disease, much less a mental one, is certainly an anomoly and a relic of barbarism. Wyoming has been the very last state in the Union to abandon compulsory trial by a lay jury in every insanity hearing.

As superintendent of the State Hospital, I attempted almost thirty years ago to secure by legislation the substitution of a commission in place of a lay jury in insanity hearings. Several efforts since then, by others as well as by myself, made me more familiar with the peculiar difficulties to be overcome in securing these reforms so that a more systematic and more vigorous legislative campaign was organized last winter. The cooperation of Mr. S. B. Garrett of Casper, regional attorney of the United States Veterans' Bureau; Dr. H. R. Carson, medical officer in charge of United States Veterans' Hospital No. 86 of Sheridan, and Mr. G. M. Willson, superintendent of the State Training School of Lander, was readily secured and all of these gentlemen rendered invaluable assistance by personal interviews and correspondence. Many of the members of the Legislature were ex-service men and members of the American Legion and were very sympathetic with, and co-operative in complying with the plans of the United States Veterans' Bureau.

The new law goes into effect July 1, 1929, and as it will probably be some time yet before the Session Laws are published, it seems advisable to mention briefly some of its most important features.

1—Definition of Insane Person.

The first two sections of the act defines the class of cases that are eligible to admission and care at the State Hospital and specifically enumerates those that are more suitable for care at the State Training School. It is believed that these sections will enable physicians and court officials to readily select the proper place to which a patient should be sent. In another section the State Board of Charities and Reform is specifically authorized to transfer patients from one institution to the other under such rules and regulations as this board may prescribe,

without another hearing. This will prove to be a decided advantage over the existing law as a new hearing is required every time some inmate of the Training School becomes so vicious or unmanageable as to require transfer to the State Hospital.

The procedures prescribed for commitment to the State Training School are quite different and are described in another chapter.

2—Appointment of Lunacy Commission.

All insanity hearings are to be held by the District Court before a commission of two physicians instead of before a jury of laymen. This commission is a permanent one and is to be appointed by the district judge for each county in his district and shall act during the pleasure of such judge. The judge shall have power to fill vacancies either permanently or temporarily as circumstances may warrant, but every commission shall have at least one member who shall be a regularly qualified physician. The members of this commission shall receive as compensation $10.00 for each case considered. Unlike the present law a member of the commission who happens to be the county physician is nevertheless also entitled to this compensation.

3—Hearing Before Jury.

The hearing may be held before a jury of six laymen instead of the regular commission under the following conditions: "If the court shall consider it advisable, if the alleged insane person, or a relative or friend so demands, if the prosecuting attorney so demands or if the lunacy commission shall fail to make a finding." In every jury trial the testimony of at least one legally qualified physician must be presented to the jury and the proceedings thereafter shall be in all respects, as near as may be, as in civil actions.

4—Commitment Papers to be Reviewed by State Board.

As soon as a person has been committed to the State Hospital the clerk of court must immediately transmit certified copies of all the papers in the case to the secretary of the State Board of Charities and Reform and to the superintendent of the State Hospital. In the original draft of the bill there was a provision also to the effect that upon the State Board's acceptance of these papers the superintendent of the State Hospital should immediately send for such patient. Somewhere in the passage of the bill through the two houses this provision was dropped and the law reads that immediately upon the receipt of said papers the superintendent of the State Hospital shall send for the insane person. However, it has been the invariable custom of every State Board of Charities and Reform since Wyoming became a state to reserve the right to decide for itself whether or not any particular patient is entitled to admission to the State Hospital merely because he was committed by the District Court. There seems to be no doubt whatever that in this respect the board is clearly within its rights, and there are many good reasons why this reservation should be exercised by the board. First, to satisfy itself as to whether all of the requirements of law have been complied with generally and especially if the patient is being committed to the proper institution. Second, to satisfy itself that the person committed is in such physical condition as to withstand the fatigue and hardships of a long and exhausting journey to the hospital. It is almost a yearly occurrence that the prompt interference of the board has prevented a trip that would have resulted fatally to enfeebled patients. Third, to pass upon the question if, in the case of a non-resident, it is not really more advisable to return said non-resident directly to his own home. Fourth, to insist upon a satisfactory physician's certificate. It not infrequently happens that physicians are so negligent in this respect that their statements are so barren of all facts as to be absolutely worthless.

5—Hearing in County Other Than County of Residence.

Under the present law the expense of hearing and the cost of the required clothing are always charged to the county wherein the hearing is held even if the person be a bona fide resident of another county. It occasionally happens for various reasons that a hearing should be held in some other county than the one in which the person resides. Section 15 provides a method whereby such

hearings can be held in other counties and the necessary expenses legally charged to the county of residence.

6—Parole and Discharge of Patients.

The new law specifically sanctions certain unauthorized practices that have been customary for many years in the way of paroling and discharging patients. For example, patients may be released upon parole under such regulations as may seem advisable to the State Board of Charities and Reform. Likewise there is also a provision authorizing the superintendent of the State Hospital to discharge a patient because he is not insane, or because he has recovered or because he has so far improved as to be capable of caring for himself or because the friends or the family of the patient have requested his discharge.

Some of the courts have occasionally held a hearing for a petition that a paroled patient be adjudged sane or released from guardianship, shortly after parole had been granted without even notifying the superintendent who had paroled the patient, of the proposed action. Under the new law a district judge will have to give the superintendent fifteen days' notice of such hearing.

Another needed reform has been secured by granting a more liberal allowance for the purchase of clothing and for the traveling expenses of paroled or discharged inmates.

7—Order of Court Restoring Civil Rights.

Whenever a patient is paroled or discharged for any reason, escapes or dies it is incumbent upon the superintendent of the State Hospital to promptly report such occurrence to the clerk of the District Court having jurisdiction in the case.

When notified that a patient has been discharged as recovered or not insane the judge of the District Court must enter an order restoring the patient to all of his rights as a citizen and if a guardian of his estate has been appointed steps must be immediately taken preliminary to terminating such guardianship.

8—Procedure to Determine If Person Is Not Insane.

If any reputable person requests in writing the discharge of any patient on the ground that he is not insane or has recovered, the court shall issue a writ of habeas corpus. This must be inquired into by two reputable physicians to be approved by said court in like proceedings as hereinbefore provided in this act for commitment of insane persons. The right of trial by jury in such cases, however, is limited to those cases only where the district judge deems a jury trial advisable or where the commission disagrees.

The foregoing is only a brief resumé of the more important provisions of the new lunacy laws. It is confidently believed that this legislation marks an important step in securing more liberal and more humane methods in the care and management of the insane wards of the state.

A Second Infection With Syphilis

Greenbaum cites a case of an unmarried mulatto, aged 17 years, who had been treated for early syphilis from Jan. 18, 1923, to June 21, 1923, in the clinic of Dr. J. Frank Schamberg. During this time she received 18 intravenous injections of D. R. L. neoarsphenamine, each 0.9 gm., so that the total was 16.2 gm. The complement fixation reaction became negative after the 9th dose and remained so until June 21, 1923, when the patient disappeared.

Fourteen months later (August 16, 1924), she returned for a blood examination, and it proved to be still negative for syphilis. She again disappeared, but returned, now married, on Feb. 15, 1927, with a profuse generalized maculopapular eruption, erosive syphilids in the mouth, on the tongue and faucial pillars, and several vulvular condylomas of three weeks' duration. There was also a generalized marked adenopathy. A dark-field examination of a condyloma was positive for **Spirocheta pallida.** The complement fixation and precipitation reactions of her blood, as well as that of her husband, were both strongly positive.

The author emphasizes the fact that in judging syphilitic reinfections, careful distinctions must be made between pseudo-reinfection, in which the existing lesions are manifestations of the original infection; superinfection, which is the reinoculation of an incompletely cured syphilitic with a new syphilitic virus; and true reinfection, which is an entirely new infection with **Spirocheta pallida** in an individual apparently cured of the first infection. Greenbaum believes that the above cited case is a second infection because of (1) the universal marked lymphadenopathy, (2) the profuse widespread eruption which closely resembles a florid secondary exanthem, and (3) the time (4 years) elapsing between the first and second infections.

In the opinion of the author, this case illustrates, the fact that some syphilitics can be cured by neoarsphenamine alone, and occasionally by dosages much less than those regarded as the minimum for acute cases. Nevertheless, he believes that no experienced syphilographer would treat early syphilis with any single antisyphilitic agent or with as small a quantity of drug as administered to the patient discussed in this paper. —Penna. Med. J., 1928, v. 32, p. 11.)

INTERSTITIAL KERATITIS*

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BILLINGS, MONTANA

Interstitial Keratitis is a distinct clinical entity found only in cases of hereditary lues and is characterized pathologically by round-cell infiltration in the deep layers of the cornea and by deep, new vessel formation. It runs a chronic course.

History—The disease is probably as old as any type of syphilis and was well known clinically many decades before the Wassermann test or the spirochete was first seen.

As to age it usually appears between the fifth and the twentieth years, as to color it is more prevalent in the negro in the U. S. A.

As to pathology it may appear first either in the center of the cornea or it may be marginal from the beginning, should it be in either location, we will see small maculae, whitish, which with a hand lens are easily seen to be deep in the corneal layers, these maculae, increase and run together until they involve a sector or the whole cornea which then takes on a ground glass appearance. Very soon from the limbus we see new vessels arising from the deep scleral vessels and penetrating to the deep layers of the cornea grow out and into the infiltration. These vessels branch at the limbus forming a brush shaped figure called in German "die Burste" and I find it to be the most pathanomonic sign of the disease. Should the process begin near the limbus these new vessels reach the infiltration early so that resorption takes place more rapidly and thus prognosis is better. The process is a first in one eye, but the other eye becomes involved in a few weeks often, but this is not a definite rule.

Symptoms are pain, photophobia, lacrimation, blephrospasm and diminished vision as a rule these are quite marked in the beginning, but the pain, lacrimation, and photophobia disappear to a large extent. These symptoms are so severe at first that in large eye clinics they often resort to narcosis to make the first complete eye examination.

Diagnosis is usually made by the characteristic infiltration with new vessel formation; this will lead the physician to make a Wassermann test, which fortunately in these cases is nearly always positive. The case will also show some of the other evidence of hereditary syphilis as scars in the pharynx, prominent frontal eminences and Hutchinson's signs. Prof. Hutchinson of London had a chance to observe many cases of hereditary syphilis and found in a large group of cases three manifestations called "Hutchinson's Triad." This Triad he found in 35 per cent of the cases. The first is the characteristic central notch found upon the two upper incisor teeth. This is found only in the permanent teeth, not in the milk teeth. The second number of the Triad is the Interstitial Keratitis and the third member which follows the second in about two years, only in a certain proportion, of the cases, is a labyrinthitis. This labyrinthitis is severe and rapid so that in the course of a few days the child is stone deaf, and the deafness is usually permanent.

Prognosis—The authors all agree that the prognosis given to parents should be guarded. The disease is self-limited, running a course from three to eighteen months, the pain disappearing after a few weeks and the opacities clearing as time goes on, but often never completely disappear, and if they are in the center of the cornea, vision will be very much diminished; whereas, if it is marginal, it will be of little consequence.

Treatment—Dilating the pupil with atropine and thus placing the iris and the ciliary body to rest is the most important part of the treatment. Due to the dense infiltration of the cornea it is often necessary to first instill cocaine and adrenlin and wait fifteen minutes until the issues are pale, then instill the atropine powder and it will be much more effective. A great many authors believe that this is the one important treatment, all others of little consequence. However, the usual antisyphilitic treatment should be carried out with potassium iodide, mercury and salvarsan, this has little effect except to build up the resistance of the patient, as it has often

*Read at the Midland Empire Medical Conference, Billings, Mont., Wednesday, April 3, 1929.

been observed that when the above medications have been pushed to the tolerance of the patient that the other eye develops an interstitial keratitis and runs a course similar to the first eye and also the labyrinthitis (the third member of Hutchinson's Triad), comes on in spite of this saturated treatment. Other remedies have their advocates and seem to give fair results as, subconjunctival injections of hypertonic solutions, dionine is also used by some.

I wish here to report six cases of interstitial keratitis that I observed the full course under malarial treatment in Klagenfurt, Austria, Purtscher Clinic, last year. But here let me diverge a little and give you the history of the malarial treatment of syphilis. "In the year 1917, Wagner Von Juaregg begun to treat paresis by the inoculation of malaria. He was led to do this by the observation that paretic patients, who developed intercurrently, an acute febrile disease, often developed a striking and lasting remission. In that year, he inoculated nine cases of paresis, and of this nine, six of recent onset developed complete remissions. Three of this six were known to be well and at work in 1922. Up to 1922, he had inoculated two hundred cases of which fifty showed a return to normal.

Since, a number of European and American authorities have reported a large number of cases with a percentage of complete remissions that range from 25 to 65 per cent or an average of about 35-40 per cent.

Complete remission means return of normal mental faculties and ability to resume a gainful occupation."

Dr. G. Alexander Young from the Neuropsychiatric Department of the University of Nebraska writes: "In the report of January, 1927, I noted the results in twenty-six cases of paresis treated by malaria that I had personally observed. Of the twenty-six cases of paresis, there were nine cases of full remission of 34.6 per cent; six cases or 23 per cent of marked improvement; six cases or 23 per cent of moderate improvement, and five cases of no improvement of which one case died about six weeks after the malaria of bronchopnuemonia. The total of classes one and two makes 57 per cent of these otherwise almost hopeless cases that had resumed work or home life."

I am sure that today, among physicians treating mental cases, all are absolutely sure that they have found a very effective weapon in malaria against paresis. Prof Wagner Von Jauregg is also having good success in treating cases of Tabes Dorsalis which are not responsive to other lines of treatment. He has been able to check the process and those nerve area still in the process of irritation are improved, but in these two diseases Tabes and Paresis, the spirochete has been demonstrated; whereas, in interstitial keratitis, I believe, it has never been found in the corneal tissue. In fact, this disease would be difficult to classify under any of the classical divisions of primary, secondary or tertiary, or neuro syphilis. However, in the six cases I observed treatment by malaria from December, 1927, to April, 1928, I was encouraged with the results. The cases were given treatment as follows: daily rubs of mercury ointment; 1 cc. of potassium iodide in milk three times daily; 0.2 gram of neo salvarsan every two days over a period of four weeks. At the end of this period they were taken to the malarial ward and injected with 5 cc. of blood from a malarial patient intravenously, the incubation period was 3 to 8 days. The tertian type of plasmodia was used, but often the patient had a double tertian infection so that they had daily chills. The results to me were surprising. The inflammatory symptoms were gone at the end of the period of chills (after the 8th chill, the patient was given 5 cc. of 20 per cent quinine sulphate intravenously which terminated the malaria at once, although two small doses were later given). The inflammatory symptoms not only disappeared rapidly but there was a marked clearing of the cornea, and vision markedly improved. One patient before malarial chill saw a moving hand only at 2 meters, but 3 days after her chills read the 5/9ths in the meter system.

I was able to follow these cases only for three months, two of the six cases had both eyes involved at the time of the treatment,

but the remaining four over the period of four months had no recurrence in the other eye.

DISCUSSION

Earl Whedon, Sheridan, Wyo.: On behalf of the Wyoming doctors I wish to extend to you gentlemen of our sister state on the north, our heartfelt appreciation for inviting us to this meeting. Some of us have met with you before in similar meetings and that we are glad to return shows that we think these meetings worth while and that's why we are here today. We thank you for kindnesses.

I want to compliment the essayest on his paper which I have carefully gone over before hearing it read here. It's very well written and the malarial treatment brought out so clearly is new to many, although most of you are familiar with its use in syphilitic cases involving the nervous system. But being a democrat, I, as such, have the right to criticise any one from President Hoover down, and so my suggestion takes the form of questioning the title as applied to this most excellent paper. Would not, "Hereditary syphilitic Interstitial keratitis and its treatment," be a fairer one? I for one do not consider all cases of interstitial keratitis to be due to syphilis. Much less to inherited syphilis in 100 per cent. Certainly tuberculosis and acquired syphilis are recognized causes by such men as Jackson, Fox, De Schweinitz and a host of others who state different percentages of cases being hereditary, running from 50 to 90 per cent.

I am positive that I have seen true syphilitic keratitis develop in cases of acquired syphilis late in life and I know I have found tubercular cases which failed to show any Wassermann, Kohn or other evidences of lues.

I recall a most interesting case that developed in a colored man who was given a large pension by one of the old-time pension boards made up entirely of general practitioners. After this fellow got his pension he came to me and under mercurial inunctions his eyes cleared up and vision returned. He left the country so he could continue to draw his pension in places where he was not known as blind.

Allow me to suggest that in all cases not showing a positive Kohn, which I consider more valuable than a Wassermann that you try a tuberculan test. I cannot agree with the writer in his statement, "That the spirochete has not been found in the substance of the cornea," as Dr. DeSchweinitz and other authors positively report its discovery and give as one of the reasons why some of the later remedies such as neo salvarsan is more effective in that it reaches these spirochete in the cornea which are hard to reach on account of the very poor circulation in the cornea and by reason of the strength of this remedy produces greater curative effects. Also I believe as a rule if a case is properly treated the second eye is not so much damaged as the first. Perhaps I may seem too critical, but I want to suggest to the writer that in at least 50 per cent of all cases of insterstitial keratitis there is active involvement of the iris and indeed the anterior half of the globe. The resulting damage involves also the choroid and often the retina. Hence all the loss of vision is not caused by the opacity of the cornea, but is part due to a disseminated choroditis which nothing we now know of can clear up.

Perhaps it would be of some practical help to the men who know more about the great subject of general medicine to call attention to the distinction between interstitial keratitis and phlyctenular keratitis. This latter is also a disease of childhood and although we do not see very much of it in the West, the East and South is overrun in the clinics. Here the little children are brought in often wrapped in a dirty black shawl to protect their eyes from the light. Poor little things, under nourished and often suffering for weeks because of a lack of a correct diagnosis. In the eastern clinics thousands are seen in a year. Here it is not a question of lues but one of mal nutrition and poor hygiene and its lack of sunshine.

Ask the mother what the baby had for breakfast and she will say, "Beer and crackers," and for dinner? "Crackers and beer," and what are you going to give it for supper? "Crackers and beer."

In these eyes you have a blister or ulcer usually near the edge of the cornea or in the conjunctiva and although it, if allowed to run on, will produce a haziness of the cornea it is not interstitial keratitis. So don't jump at the conclusion the moment you see a child with an inflamed eye even if the cornea is ground glass like or lacking lustre that you have found a case of interstitial keratitis.

In the line of treatment push the atropine at once, and if the pupil does not promptly enlarge, use adrenalin either hypodermically or according to Harry Gradle's system of a few drops on a small pledget of cotton placed under one of the lids preceding the use of a little cocaine solution to deaden the sensation. It is truly surprising how quickly the iris will dilate under adrenalin, and in children there is little danger of an acute glaucoma by its use.

The last point I wish to call your attention to is the old stand-by, mercury inunctions. Have rubbed in a dram or so every day, but rub it in with rubber gloves. Watch out for a pharyngitis and if it occurs use iron in place of mercury and tincture of myrrh as a mouth wash to clear up the pharynx. Mercury and chalk come next to inunctions.

Lastly, do not forget to give a hopeful although guarded prognosis as most of these cases clear up so as to have useful vision. Of course one eye is generally better than the other and careful refraction should provide glasses which correct the astigmatism that often follows the inflammation of the cornea. I thank you.

Ephedrine in Spinal Anesthesia

Dr. Jos. L. DeCourcy, in the American Journal of Surgery, December, 1928, states that probably the most valuable means of preventing serious lowering of the blood pressure following spinal anesthesia is by the administration of Ephedrine. Dr. DeCourcy injects one-half the contents of an Ephedrine-procaine ampule beneath the skin over the interspace. Then without withdrawing the needle, he carries it directly toward the interspinous ligament injecting the other half of the solution as the needle is pushed along.

The use of Ephedrine in the anesthetizing solution has the effect of raising the blood pressure and thus preventing one of the most dangerous complications of spinal anesthesia.

One hundred major operations carried out at the DeCourcy Clinic under spinal anesthesia gave consistency excellent results.—Journal of Chemotherapy.

INFANT FEEDING

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The most successful food for infants today is the same as it was a thousand years ago—namely, breast milk. Undoubtedly too much emphasis has been placed on artificial feeding. Mortality statistics show that for every death in a breast-fed infant five deaths occur in those artificially fed. Nothing stronger could be stated to urge and emphasize the importance of breast feeding. Authorities as Jacobi, Sedgwick, Griffith, and others claim there is no such condition as agalactia, and that at least 95 per cent of mothers are able to nurse their babies if they are given proper prenatal care and supervision and instruction after delivery. It is important that the baby have a regular schedule. One should be sure that the breasts are empty after each feeding. This is certainly important if the milk supply is to be kept up. Most normal babies do better on a four-hour schedule than on a three-hour schedule. There is never any indication for nursing oftener than every three hours. Most babies that are weaned either with or without the physician's advice because of poor quality mother's milk is really due to insufficient quantity. It is well to remember Dr. Marriott's adage that once a food agrees with the baby it always agrees with him. If a baby is getting along nicely and all at once starts to vomit and shows evidence of discomfort, search for infection and about 75 per cent of the time you'll find an inflamed, bulging ear drum. Usually there is a rise of temperature with otitis media in infants, but occasionally the temperature may be normal.

If it becomes necessary to wean the baby, or if the baby is brought to you after it has been weaned, naturally the question arises in your mind as to what you should feed him. Let me warn you to beware of proprietary infant foods. A few are excellent, but expensive; some are fair and many are bad. Some requisites of infant food are simplicity of preparation, availability, and cheapness. To feed any infant successfully certain known facts must be met.

First, there should be an average of fifty calories per pound of expected body weight. By expected body weight I mean what an infant that age should weigh. Of course some babies will get along beautifully on less calories and some require much more.

Second, the essential food elements should be contained in any formula. Experience and experiments have shown that the infant must have from 1½ to 1¾ ounces of whole milk per pound body weight to fill the protein or nitrogen requirement. If this isn't supplied the tissues become soft, flabby and oedematous. One and a half ounces of milk per pound of weight will fill the requirements for mineral salts and part of the water requirement. Also some vitamins. The vitamin content of any milk depends on the animal or mother's diet. Vitamins are not manufactured in the body. During the summer months when there are plenty of green vegetables for the mother and plenty of green food for the animal, the vitamin content of the milk will be relatively high. However, to insure an adequate supply of the necessary vitamins A, D and C, cod liver oil and orange juice should be added to the diet of all infants. Begin cod liver oil in small amounts at two weeks and orange juice or tomato juice at one month. It is wise to continue these through the second winter at least. Fat is really unnecessary in the infant's food and large amounts are not tolerated. The infant fed on whole cow's milk or modification thereof gets as much fat as the breast fed infant gets. Pigment is non-essential until the sixth month, then it is absolutely essential and is supplied in the form of green vegetables. The liver stores enough iron to supply the needs for the first six months. If the baby doesn't get the green vegetables at six months, it begins to draw on the hemoglobin of the blood for its iron supply. Consequently the infant becomes pale and pasty and its resistance is lowered to infection.

*Read before the Midland Empire Conference, Wednesday, April 3rd, Billings, Montana.

The carbohydrates are supplied by adding to the formula 7 to 10 per cent of sugar, depending upon the type of sugar used. If milk sugar, cane or beet sugar is used not over 7 per cent should be added. Infants, however, do better on a mixture of dextrose and maltose. This type of sugar is easily and cheaply supplied in the form of commercial corn syrup. (For example ordinary brown "Karo" corn syrup.) This contains approximately 55 per cent dextrin, 40 per cent maltose and dextrose and 5 per cent cane sugar. The refined white syrups all have additional cane sugar and are not usually well tolerated. The more expensive malt preparations such as Mellin's food and Dextro-Maltose possess no advantages over corn syrup.

Third, the food must be free from harmful bacteria. The only way to be sure that the milk is free from harmful bacteria is to recommend that all milk be boiled and kept on ice until used. Pasteurization is relatively safe. It kills all the living bacteria but the spores are unaffected.

Fourth, the food must be digestible. This can be accomplished by modifying the whole milk with water or by reducing the buffer value of whole cow's milk to that of mother's milk. By buffer value I mean the ability to absorb acids or alkalies. It has been found by experiment that cow's milk has a buffer value three times as great as mother's milk. By adding a teaspoonful and a half of acid to a quart of whole cow's milk the buffer value is the same as mother's milk. Lactic acid is cheap and safe to use although acetic, HCL, or citric acids can be used. Convenient formulas are as follows:

Whole Milk	1 Qt.
Brown Karo Corn Syrup	3 Ozs.
Lactic Acid	℥iss

Always add the lactic acid slowly when the milk is cold. A full curd should be formed and the milk of course is sour to taste. Give the baby all he wants every four hours until six months of age. At six months reduce the sugar to 2 ounces, at nine months reduce the sugar to 1 ounce.

Evaporated unsweetened milk (any brand) is very satisfactory to use. It is an excellent grade of whole milk evaporated to one-half its volume and sterilized in an autoclave. A convenient way of making a formula with this is as follows:

Acid Sugar Sol.

Boiled Water	1 Pint
Karo Syrup	3 Ounces
Lactic Acid	℥iss

Mix the acid sugar sol. with equal parts evaporated, **unsweetened** milk and you have a good grade of whole lactic acid milk.

Please don't confuse evaporated, unsweetened milk with evaporated, sweetened milk. The sweetened condensed milk is milk evaporated to one-half its volume C 50 per cent additional cane sugar. When diluted according to the directions on the can it gives the baby very little else than a sugar sol. It is deficient in all the essential food elements except the carbohydrates. The infant's tissues become soft and flabby and sometimes actually water logged on such food due to deficiency of protein. The practice of recommending sweetened condensed milk is a most malicious practice and should be condemned by all physicians.

In closing let me emphasize:

1. Keep the baby on the breast if possible. The baby should be weaned at nine months.
2. Be sure the baby is getting sufficient food.
3. If the baby cries a great deal and is fretful, look out for infection, especially otitis media.
4. Make your feeding formula simple but be sure it fulfills the essential requirements as outlined.

BIBLIOGRAPHY

[1]McKim Marriott. Notes on Infant Nutrition, Fourth Edition, 1928.
[2]Holt. Diseases of Infancy and Childhood.
[3]Veeder. Preventive Pediatrics.
[4]Wilcos. Infant and Child Feeding.

DISCUSSION

W. C. Tupper, Laurel, Mont. Dr. Nelson in his paper, and Dr. Mills in his discussion have covered quite completely the technical side of this subject so I shall confine myself to a few general remarks. In no branch of medicine has there been greater advancement in the last decade than in the art and science of infant feeding. This is shown by the very decided fall in infant mortality of the first year's of life. We can trace this to two main factors First the education of the public to the importance of breast feeding in every possible case. This includes the

proper prenatal care of the mother, the proper diet during pregnancy and after labor and careful attention to the details of adjusting the mother to the needs of the child in the first few months of lactation. A little patience will often tide the infant over this troublesome period if the doctor is not too easily alarmed over the apparent incompatibility or lack of quantity of milk.

The second factor which we must consider is the better understanding of the physiological and chemical needs of the new-born. Chemistry and particularly physiological chemistry has shown us how to supply these needs. After all the child at this age is a very active chemical factory and if we can understand the reactions which go on in him and the reagents necessary we can more easily bring him through the first year of life with fewer complications. The importance of those complex substances known as vitamins has been stressed by Dr. Nelson. While the people of these mountain regions are specially blessed by foods of high vitamin content and a relatively larger amount of sunshine during the year, all of which naturally makes for healthier babies, we should not lose sight of the prophylactic value of an abundance of these substances in the infant's food.

The search for an artificial food which will more nearly approach the ideal has run the gamut of many and various kinds of preparations. We have finally learned that we must rule out all of those foods which do not contain a proper balance of all the food elements, which are nearly always lacking in the proprietary preparations now on the market as baby foods. We have used with some success the alkaline modifier of milk, most commonly lime water, and now the acid modifier has been developed. This last modification seems to be a distinct advance in pediatric science. It is exceedingly simple in application, easy and inexpensive to procure and is free from so many of the pitfalls of the older milk modifications. For these reasons I believe it meets with greater success than any other form of artificial feeding. It is of particular value in cases of extreme malnutrition or in the course of the more severe infections of early childhood. This paper of Dr. Nelson's should be of especial value to the busy general practitioner who has not the time to go into the complicated theories and formulae of artificial infant feeding.

NEWS NOTES

Fremont County

Dr. J. L. Linn, our President-Elect expects to leave for California early in June and will not be able to attend the Casper meeting. This announcement will cause sorrow over the state as Dr. and Mrs. Linn are held in high esteem by the members of the medical profession of Wyoming. With them will go our best wishes for all the good things in life. Again California gains what Wyoming loses, but we are proud to send such representatives of Wyoming to help out California in her needs.

Northwestern Wyoming Medical Society

Dr. Louis Howe of Cody, Wyoming, one of our honorary members has just returned from Omaha where Dr. Gifford has been treating his eyes. We all hope for Dr. Howe's speedy recovery.

Dr. W. H. Hassed, State Health Officer recently visited Park county and gave over 500 Toxin-Antitoxin injections to the school children and President Dr. F. A. Mills, who is health officer vaccinated over 400 children to prevent smallpox.

The Northwestern Medical Society held its regular meeting in Powell May 12th. Dr. Mills read Dr. Nelson's paper on Infant feeding, which Dr. Nelson presented at the Midland Empire Conference.

Dr. Chester E. Harris read a paper on the Doctor's Co-operative Finance. Drs. J. D. Lewellen, of Cody; Chester E. Harris, of Basin; were elected delegates to the House of Delegates of the next state meeting. Drs. Lane and Dacken were elected alternates.

Natrona County

Dr. J. C. Kamp was recently made a fellow of the American College of Physicians and Surgeons. He attended the Boston meeting.

Sheridan County

Dr. Oscar Veach and wife of Sheridan are visiting in New York City and the doctor is attending the hospitals. They expect to be gone about a month. Dr. T. E. Marshall has recently returned from a winter spent in Phoenix, Arizona. It certainly seems good to see the doctor back home looking so well, and we all hope for a speedy recovery.

Dr. W. H. Roberts expects soon to take a short vacation in the east.

Treatment of Varicose Veins of the Legs

A survey of a series of 4,607 cases made by Norman J. Kilbourne, Los Angeles (Journal A. M. A., April 20, 1929), shows positively that the mortality by operative excision of varicose veins in America is one in 250. The mortality by injection cannot be so accurately determined; but a study of 50,000 cases shows that it is less than one in 4,000. Recurrences after operation average 30 per cent, and after injection 6 per cent. Although embolism, phlebitis, ulcer formation and gangrene are rare, no injection should be made until they have been prevented by thorough preliminary study.

Preventive Medicine

Preventive medicine has made great strides in the last ten years. Chemistry has given us more efficient antiseptics to assist in the battle against the bacteria which cause disease. Chemistry has also given us more efficient agents for the treatment of disease, a better understanding of the effects of diet, exercise, rest, etc., have made it possible to avoid conditions leading to illness.

Will we see the day when preventive medicine will make serious inroads in the practice of medicine and curtail the business of druggists? I think not, for many years at least.

In a paper presented at Chicago recently, Dr. V. S. Cheney, Medical Director of Armour & Co., made this statement, "Health, good or bad, is still and always will be largely a matter of individual effort." My observation tells me that individual effort does not increase in proportion to knowledge.

The many new conditions of pressure and strain under which so many people work today greatly offset the gains we have made in preventive medicine. Doctors and druggists undoubtedly will have to offer new services and new products to meet these new conditions, but I believe both will be busier ten years from today than they are now. —Ralph R. Patch.

BOOK REVIEWS

A Text Book of Pharmacology and Therapeutics. By Hugh A. McGuigan, M.D. Professor of Pharmacology and Therapeutics, University of Illinois, School of Medicine, Chicago. Octavo volume of 660 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $6.00 net.

One closes the book with a definite wish that it might be placed in the hands of all intelligent mothers. Those especially who bring to its study a certain amount of scientific knowledge will find it valuable. At times the authors may seem to address themselves to physicians rather than to mothers. In the main, however, no educated person could fail to find the information practical and helpful. The writers are conservative in their advice on feeding, especially during the first year and a half of life. In a book to be given to mothers this is an especially fortunate approach to the subject. The chapter on training children in obedience, in religion, sex, self control, etc., appeals to those of us brought up in New England homes, but might offend a modernist. The concrete suggestions on the care and treatment of sick children are practical and should be of great assistance while a physician is being secured. ELSIE S. PRATT.

What Everyone Should Know About Eyes. F. Park Lewis, M.D., F.A.C.S. Fabricoid, 16 mo., 74 pages. New York and London: Funk & Wagnalls Co. October, 1928.

This is one of the twenty-eight pocket manuals of the National Health Series, edited by the National Health Council, composed of fifteen American health organizations, of which the National Society for the Prevention of Blindness is one, and of which Dr. Lewis is a vice president. In every case ocular treatment, medical or surgical, needs to be supplemented by intelligent care on the part of the patient, nurse, parents and school authorities. A large part of the duty of the doctor is to teach how to give such care. Every physician needs to know where he can find help in this instruction, and this little book is the newest and one of the best helpers in this direction.

Part I may well be read by the physicians for its broad general review of the mechanism of sight. The contents of Part II, on the treatment "pink eye," trachoma, birth infections, injuries, etc., should be familiar to school nurses and health authorities. Part III, the Eye in Middle Life and Beyond, is something that general practitioners can read for themselves, or recommend to patients, who are beginning to think of guarding against physical decline. Part IV, Eye Inheritances, contains information that should be considered by intelligent people throughout the community, for its bearing on the general welfare of the coming generation. The importance of vision should attract attention to some things familiar to students of biology and eugenics.

EDWARD JACKSON.

The Infant and Young Child. Its Care and Feeding from Birth Until School Age. A Manual for Mothers. By John Lovett Morse, A. M., M. D., Professor of Pediatrics, Emeritus, Harvard Medical School; Consulting Physician at the Floating, the Children's, the Infants', and the Beth Israel Hospitals, Boston. Edwin T. Wyman, M. D., Instructor in Pediatrics, Harvard Medical School; Visiting Physician at the Floating Hospital; Assistant Physician at the Children's and the Infant's Hospitals, Boston, and Lewis Webb Hill, M. D., Instructor in Pediatrics, Harvard Medical School; Assistant Physician at the Children's Hospital; Visiting Physician at the Nursery for Blind Babies, Boston. Second Edition, Revised. Philadelphia and London: W. B. Saunders Company, 1929. Price $2.00.

The text is divided into an introductory section, covering the theories and conditions modifying drug action; the major portion of the remainder of the volume is principally taken up with a discussion of the pharmaco-dynamics and therapeutics of medicaments.

The text is not as detailed in its description of the actions and uses of drugs as are a number of other books covering the same subjects, but the main facts are given in a clear and concise manner. Under the discussion of the therapeutic uses of many remedies, the author gives illustrative prescriptions, indicating the use of the drug. These should be helpful to the student of therapeutics.

The reader will find much in the volume which strictly belongs to the fields of organic and biochemistry, and the author may be complimented for attempting to correlate these subjects with pharmacology and clinical therapeutics.

In certain sections the order in which certain of the remedies are described is somewhat confusing, for instance, it is difficult to see why insulin should be discussed under lipins, or why parathyrod extract is considered under thyroid instead of under calcium and its effects.

An excellent section, covering the main facts essential in writing prescriptions is appended.

R. W. WHITEHEAD.

Ten Million Persons Affected

Results of the research will affect ten million people in the United States who suffer from afflictions of the hearing apparatus, a number large enough to entirely re-populate New York and Chicago as "Cities of Silence."

A large proportion of these cases come under the classification of chronic progressive deafness, which is characterized by gradual loss of hearing often terminating in profound deafness. It is popularly believed that aside from the inconvenience of not being guided and entertained by sound, that the deafened person has some advantage over the normal hearing person in escaping the nerve-shattering noises of modern life. However, quite the contrary is often true, for many deafened persons have an unceasing, loud roaring in their ears, similar to the racket of a subway train, which cannot even be stilled by the sedatives commonly used to quiet overwrought nerves.

Research Begun Four Years Ago

Research into otosclerosis, the hereditary form of chronic progressive deafness was begun by the American Otological Society four years ago under a grant of $90,000 made by the Carnegie Corporation. The grant was awarded over a five-year period in decreasing amounts each year with the expectation that the society could build up a permanent fund to continue the work. In order that the work may not be interrupted the society is seeking $500,000 by July 1st. Already $100,000 has been pledged by Edward S. Harkness with the condition that the remainder of the half million fund be completed by that time. Other amounts pledged unconditionally, bring the fund up to $250,000.00 to date.—American Otological Society.

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EDITORIAL NOTES AND COMMENT

COMMON HONESTY

The outstanding ethical challenge that faces the medical profession today is one of common honesty. It is this: Shall we cheat our patients and encourage unnecessary operations by splitting fees? From the best information available it appears that a considerable fraction if not a majority of the physicians and surgeons in this country are now taking part in this abominable practice. Members of the College of Surgeons are apparently by no means exempt, although their constitution specifically forbids it.

From the point of view of the public it makes little difference what form this robbery takes. But probably it does more harm to the physician when it takes some of the numerous forms in which it is covered up by one or another of the current devices, such as having the physician "assist" at the operation. Perhaps the worst feature of fee splitting is not the loss of money to the patient but the encouragement to the performance of unnecessary operations with the inevitable percentage of fatal results, the removal of normal appendices for "chronic appendicitis," and of normal gall bladders for "chronic cholecystitis."

The worst part of it all is that no remedy is in sight. The public cannot tell a fee splitter from an honest man, nor a fake diagnosis from a true one. They are at our mercy and there is very little of that quality in sight. The only far-off hope is in the growth of intellectual integrity in the medical profession as a whole, a growth that may be favored by the sense of chronic discomfort in living the life of a liar and cheat. Let us cling to this hope.

RICHARD C. CABOT,
Cambridge, Mass.

A WORD ON EDUCATION

Many definitions have been given of education. We are not concerned to add to their number, but may say offhand that education may be looked at to advantage from the standpoint of what constitutes life in its broadest sense. Whatever helps a man to occupy his proper place in life is of educational value.

(1) Adjustment: Education may take on the form of adjustment, adjustment to nature and adjustment to man. If one is rightly adjusted to man he may be called a good citizen, if to nature a good denizen. To be at once a good citizen and a good denizen is to go a long way towards being an educated man. Neither of these adjustments is easy. One cannot be at home in a world of which he is ignorant. Hence close and intimate observation of the outside world is a necessary part of education. Likewise it needs some education to be aware as the Spanish proverb has it "that there are people living on the other side of the hill." To be sensitive about them, as we should say today, is no easy task, and to believe in the other man's right to "life, liberty and pursuit of happiness." Such a man is a good citizen and fairly on his way to education. He will be a better citizen if to this capacity he adds a desire to walk in our human cemetery and commune with the mighty dead.

In this way the giants of other days must be brought into our lives if we are to count ourselves among the men who are educated.

(2) Advance: Some one has said that every advance made by man is a resurrection of the dead. At any rate we heirs of time stand in a favored position just because great men with an appetite for the larger life have preceded us; and we are poorly educated if we cannot profit enough by their work to make some sensible step forward. They throw the torch to us and we must carry on; in the words of Lincoln we must be alive to man's vast future. So in the second place besides the difficult task of adjustment, there is the difficult task of advance. He is not completely educated who does not by absorbing the past lay the foundations for the future. He must as Whitman said "pass and continue beyond."

Every educated man is thus a pioneer, a careful, considerate, constructive pioneer. If at one and the same time he knows that he must be at home in the world and also prepare for a wider world, he must love the fathers and bid "God speed" to the sons. Thus he will pass the necessary examination and be reckoned in the number of educated man.

S. W. DYDE,
Queen's University.

THE COMMUNITY HOSPITAL AS A MEDICAL CENTER

Within the last decade there has been a great increase in hospital construction throughout the country. This movement has not been limited to the large cities but has spread to many of the smaller towns and county seats. The resulting advantages have not only affected directly the general population of their communities but have proved a boon to the medical profession of the locality and neighboring rural districts. The community hospital may go far to solve the question of the scarcity of rural practitioners, for with our present rapid methods of transportation and extension of good roads the country doctor will perhaps no more be lured to the supposed elysium of the metropolis.

The physician's thirst of knowledge and desire for better equipment to practice his profession can now be adequately satisfied in his local hospital. He now meets his colleagues more frequently either at the staff conference or in the cloak room of the surgery and has the opportunity to absorb by contact and without effort on his part an amount of medical information which would never come to him through other sources. The busy practitioner often has not the time and a certain proportion of doctors have not the inclination to open a medical book or keep up with the current literature of their craft. Through intercourse with his brothers in the hospital old and new medical data are handed to him as it were on a silver platter.

As to the tools and general equipment, the hospital in the smaller community is practically the equal of its sister institutions in the larger centers. Hospital management and operative technique have been as well standardized as industrial concerns and the workers in the respective departments perform their functions according to the established code prevailing in the best institutions for the sick. The operating room supervisor, the x-ray and the clinical laboratory technicians and the record keeper all carry on their work according to a more or less uniform system common to all hospitals insuring efficiency and replacement of personnel without serious break in continuity. How quickly physicians fall in step with the American spirit of eliminating waste and promoting efficiency is illustrated in the action of the surgical staff of the Greeley Hospital to pool their surgical instruments as hospital property and to provide a fund for future purchases. The folly of each surgeon making a considerable outlay for an instrument which he may use only rarely is clearly apparent. Incidentally, the fact that members of the staff of diverse temperaments thus act in a co-operative spirit belies the usual lay opinion of physicians and attests the Psalmist's pleasant contemplation of brethren dwelling in harmony.

The installation of x-ray and clinical laboratories has added considerably to the scien-

tific diagnosis of disease and has converted the community hospital from a mere boarding house into a modern institution for the treatment of the sick.

The presence of a trained technician in the laboratory and the supervision of the work by a clinical pathologist who also examines and reports on all tissues removed at operation have been a great stimulus to the medical staff to utilize the latest methods in the diagnosis and treatment of disease. Inasmuch as small communities can hardly afford to have a resident clinical pathologist, the problem has been solved by the periodical visits of a specialist in this branch of medicine from the larger medical centers who is directly responsible for the conduct of the laboratory. His attendance at the staff meeting and discussion of the cases likewise have a stimulating effect.

The necessity of writing histories and of making and recording physical examinations have had a profound effect on the practitioners in eliminating slovenly and superficial methods and encouraging a systematic and painstaking technique with added benefit to the patient.

A further factor of great potency in the post-graduate instruction of the hospital staff is the monthly meetings at which, besides a review of hospital activities, cases of interest are reported by the respective attending physicians, especially those of unfavorable turn. These are freely discussed by the pathologist and members of the staff who in the course of time have learned that frank and free criticism among themselves as of one family is no personal reflection nor prompted by any other motive than to be helpful.

The Greeley Hospital is particularly fortunate in having a staff whose membership has striven to attain the best in standardization requirements. Another source of strength is the generous support and co-operation of the county commissioners. They are usually present at the staff meetings and have taken the pains to learn hospital problems by their own observation. Hence, their readiness to adopt all reasonable recommendations of the staff both medical and financial.

In the aim to bring to the sick in all parts of the country the best of medical aid, the community hospital will be the chief factor in effecting this desirable result. P. H.

THE PHYSICIAN AND HIS FRIENDS

"He prayeth best who loveth best
All things both great and small."

While this Journal is engaged primarily in leading the scientific mind by the still waters, yet we should also endeavor to teach our readers to number their days "so that they may apply their hearts unto wisdom." What doth it profit a physician to obtain wealth, to attain social prestige or to achieve professional ambition if in addition thereto he abides not in the hearts of his fellow practitioners and of his patients, recognized as a faithful friend and conscientious counselor.

As a stream rises no higher than its fountain head, so the young physician in our midst will rise no higher than his inspiring ideal. It is a law of nature that thought is translated into action, action into habit and habit into character. The importance of directing the thought of our membership into worthy channels thus assumes a vital significance.

It is doubtless true that the physician with a full purse and a well established practice can more readily walk the straight and narrow way. How astute was Satan, how wise in the ways of the world when he said "Doth Job fear God for nought?" Who among us is so hardened and self-righteous as to condemn the man who steals a loaf of bread to feed his hungry child.

It is not only incumbent upon the High Priests of Aesculapius to set their lives upon a plane which inspires respect and admiration, but some can emphasize, as does Dr. Joseph Collins of New York, the cultural value of certain avocations in producing what he terms self-realization. Self-realization may be interpreted as making the most of and getting the fullest results from the life and talents which we possess. Instilling first into the practice of medicine kindness and charity, unto these add music and other forms of art, to art add literature and the

drama, to literature the love and appreciation of nature in all its forms, to these a number of loyal and faithful friends.

"The friends thou hast, and their adoption tried
Grapple them to thee with hopes of steel."

In the Colorado town in which the writer began to practice medicine some twenty-five years ago, he was twice blessed in as much as there were already there two physicians, the staunchest of friends and the soul of honor. If perchance he was sick or out of town either of these could be depended upon to look after the welfare of the patient and the interests of the physician with unselfish aim and unswerving loyalty. Greeted with a smile, my return to these patients was an unalloyed pleasure. No new unessential treatment had been instituted, and no hint of neglect in some important matter. The personality of the substitute was not ostentatiously obtruded leaving an impression of importance and superior knowledge, so that one might freely say with the sweet singer of Israel, "Bless the Lord, O my soul, and forget not all his benefits." C. B. D.

THESE EDITORIALS

This is a Greeley number of Colorado Medicine. The work of getting it together and of some of its writing has reposed upon Dr. Charles B. Dyde. He wished his brother, a professor in Queen's University, to write something and that brother has responded with a "Word on Education." A very sane and attractive word it is, too.

Dr. Dyde has asked the physician whom he admires above all others to contribute an editorial. So Dr. Richard Cabot has written a short, swift and unambiguous expression of his feeling about fee division. For this practice, which so strongly arouses his resentment, Dr. Cabot sees no remedy. A far-off hope may lie in the womb of time; in the growth of intellectual integrity.

In Colorado the division of medical fees is unlawful. Before that practice came under legal prohibition it was open and avowed. Now it is subterranean. Experience shows that any preachment making fees division shameful or any law making it penal has consequences no less desirable. Groups or partnerships are formed. If they are honest attempts to coordinate varied abilities they are commendable. If they are purely economic they only change the aspect not the essence of the offence. The physician often becomes his own surgeon. He specializes in appendectomy and tonsillectomy. He acquires some facility in these two operations. He imputes all forms of indigestion to chronic appendicitis and all other ills to infection of tonsillar origin. He is not wholly dishonest in this. He can give reasons for his belief. He industriously gathers supporting evidence and indolently neglects disputing facts. Belief and desire are companionable associates. Sometimes the physician hires a surgeon and this becomes complete master of all practice within his reach.

People believe that when a disease, healed in one place, breaks out in another, it is in the blood. Certainly its cause is deep and must be deeply sought. Fee division attends the growth of medicine and its partition into specialties. It occurs in a stage of medical development. It will last as long as that stage lasts. It will pass when that stage passes.

In its lowest form life is a single cell of almost homogeneous structure. In its more exalted forms there are many cells and varied organs—a differentiation of structure. With increasing complexity there is increasing dependence of the whole organism on its parts. Take a branch from a willow, plant it in moist earth, it will generate its own roots and sustain an independent life. But higher forms of life cannot be thus dismembered, or if so the parts will not develop new organs. There is then in evolution a process of differentiation and a corresponding process of integration.

It is not difficult to trace this course of events in medicine. For a long time the structure of the science and the art of medicine was so simple that all received the same instruction and pursued the same practice.

With greater knowledge and new devices specialties arise. There is now a certain interdependence of parts but it is not yet absolute as may be seen in case of the tonsillo-appendicular surgeon who "rolls his own." What medicine now needs and what according to the laws of evolution it will inevitably receive is more perfect integration. It must be made a machine so intricate and so vast that no fake nor fad can exist beside it; so capable of mass production that people of ordinary means can avail themselves of the whole of it. This change is economic, not ethic. It is doubtful if the medical profession has the economic knowledge or financial power to accomplish this final achievement. A man of the lofty purposes and the great wealth of Julius Rosenwald could show the way tomorrow. In so doing he could confer an invaluable and perpetual bounty on the people and incidentally add several millions to his vast fortune.

We read, of course, Dr. Cabot's books and his papers, but we are glad to have him again in our own circle. All his life he has been a pillar of moral strength and a great teacher. C. S. E.

SCIENTIFIC INFORMATION OR COMMERCIAL PROPAGANDA?

From the Indiana State Medical Association comes a warning to other state societies and county societies. An article in the May, 1929, Journal of the Indiana State Medical Association, by W. N. Wishard, Sr., M.D., chairman of the association's publicity bureau, and subsequent correspondence with Dr. Wishard, reveal that several Indiana county societies have been "taken in," at least to the extent of listening to questionable papers on so-called technique of contraception.

Leaders of the profession in Indiana feel that though they went to listen to supposedly scientific papers, they actually listened instead to advertising propaganda, for contraceptives manufactured by certain firms, and for books of doubtful value.

Regardless of the attitude of any physician or county medical society toward contraception problems, it would appear advisable, in view of Indiana's experience, for constituent societies in Colorado to communicate with the executive secretary before accepting the offer of an unknown doctor from outside the state to present a paper on this subject. Another point should be borne in mind—the strict Colorado laws regarding contraceptive information. H. T. S.

TULAREMIA, WITH REPORT OF A CASE*

N. A. MADLER, M.D., F. A. C. S.
GREELEY, COLORADO

Dr. Edward Francis in a recent article on Tularemia says that the clinician who bears in mind the following tetrad will seldom fail to diagnose a case of tularemia: (1) a history of having dressed or dissected a wild rabbit, or of being tick-bitten or fly-bitten; (2) a primary lesion of the skin in the form of a papule, followed by a persistent ulcer or a primary conjunctivities, followed often by ulcers of the conjunctiva; (3) persistent glandular enlargements in the region draining the primary lesions, and (4) fever of from two to three weeks' duration.

Having recognized this tetrad in his patient, the clinician will prove his diagnosis (1) by obtaining an agglutination of bacterium tularense by blood serum collected in the second week of illness and by noting an increase in the agglutination titer in serum collected a few days later or in the third week, or (2) by isolation of bacterium tularense from guinea-pigs inoculated with material taken as early as the first week from the primary lesion or from the enlarged glands or the blood of the patient. Microscopic examination of cover-glass preparations taken direct from the patient is useless.

The following case is reported because no history of having dressed or dissected a rabbit or of having been tick bitten or fly-bitten could be obtained, but the nature of

the local lesion and the subjective symptoms were sufficiently characteristic to arouse suspicion as to the true nature of the disease.

Miss M. M., age 21, school teacher by occupation, left her home, Marlow, Oklahoma, May 25, 1928, on an automobile trip. She spent the month of June in California. During the last week in June, while fondling a tame rabbit, she was accidentally scratched on the left hand but not on the face as far as she can remember. She left California on July 5th, arriving at Salt Lake on the 7th and at Denver on the 9th. While en route she spent one night at an auto-camp and the other nights in hotels. The morning following her arrival in Denver she noticed a small pimple in front of her left ear, and on the evening of the same day, July 10th, she was stricken with a hard chill, followed by fever and a severe pain in the region of the left clavicle. Her illness was diagnosed as an acute tonsillitis and adenitis. Two days later, July 12th, I was called to see her at a hotel in Greeley. She had had a chill an hour before and complained of a severe headache, pain in the left side of her neck, and a sensation of extreme lassitude. Inquiry as to the reason for the small dressing in front of her left ear elicited the reply that it covered a little ulcerating pimple which she had "picked" with a needle. The physical examination was essentially negative excepting for an enlarged lymphnode, of the size of a hickory nut, immediately above the left clavicle and another at the angle of the left jaw. Over and between these two lymphnodes, even gentle palpation elicited acute pain. She held her head in a fixed position, slight motion causing severe pain in the left side of her neck. Immediately in front of the left ear was a small, shallow ulcer, 5 m. m. in diameter, with a dirty, grayish base. Surrounding the ulcer was an erythematous area studded with numerous small vesicles. The entire lesion was about 1½ c. m. in diameter. Her temperature was 103 and pulse 120. Examination of the urine was negative. The blood examination showed 85 per cent haemaglobin, 4,500,000 r. b. c., 14,000 w. b. c. Microscopic examination of a cover glass preparation taken direct from the wound was negative. The severity of the clinical symptoms and the glandular involvement were so out of proportion to the small local lesion that some unusual infection was immediately suspected, tularemia being the most probable. Twenty c. c. of the patient's blood was taken and sent to Dr. Mugrage, director of the pathological department of the University Medical School at Denver for the agglutination test. He reported the test positive in a dilution of 1:200.

In the meantime, and against advice, the patient resumed her journey homeward, and on August 7th, one month after the onset of her illness, a personal communication was received from Dr. A. L. Blesh, of the Oklahoma City Clinic, in which he stated that she had presented herself at the clinic for the relief of a suppurating cervical gland. He also stated that while the sore on her cheek had almost healed, he was, nevertheless, struck by its peculiar appearance, resembling somewhat a blastoma but with a history departing widely therefrom. At that time there still existed in the neck several enlarged glands. By August 29th, this abscess had almost healed, but another, a small one behind the ear had developed, which also had to be drained. On September 4th, about two months after the onset of her illness, a specimen of her blood was sent to Dr. Edward Francis, at the hygienic laboratory at Washington, D. C., whose reply on September 14th read as follows: "Serum of Miss M. M. forwarded with your letter of September 7th was found to agglutinate bacterium tularense in dilution of 1:1280, but not in higher dilution, thus confirming your diagnosis of tularemia. The mystery is as to whether or not she contracted the infection from the scratch of a domestic rabbit." Recovery was uneventful.

Comments

In all probability the infection in this case was caused by the bite of a deer-fly at some time during the patient's journey from California to Denver, and that the patient was unaware as to the time this occurred. There is no case on record in which infection by the bacillus tularense has been traced to the scratch, or bite, of a domestic rabbit.

CAUSE AND EFFECT*

CHARLES B. DYDE, M.D.
GREELEY, COLORADO

In bygone days it was the custom of the Scotch Dominie to select a text and therefrom expound the scriptures. In pursuance of this commendable habit I ask you to turn to the book of Hamlet. This drama is cast in the royal Danish castle of Elsinore. The opening scenes are marked by the appearance of the ghost of Hamlet's father on the ramparts of the castle who imparts to his son the real and secret cause of his death.

"Sleeping within my orchard,
My custom always of the afternoon,
Upon my secure hour thy uncle stole,
With juice of cursed hebenon in a vial,
And in the porches of my ear did pour
The leperous distilment; whose effect
Holds such enmity with the blood of man
That quick as quicksilver it courses through
The natural gates and alleys of the body
And with a sudden vigour it doth posset
And curd, like eager droppings into milk,
The thin and wholesome blood:"

The ghost thereupon abjures Hamlet to "Revenge his foul and most unnatural murder."

Crossed by indecision and doubt Hamlet delays in fulfilling his father's command, and in his perplexity assays the character of madness, to deceive those who might solve his purpose and foil his aim. This mental ailment in Hamlet constrains Polonius, a garrulous old gentleman, to deliver himself of the following diagnostic axiom:

"And now remains
That we find out the cause of this effect,
Or rather say, the cause of this defect,
For this effect defective comes by cause:"

For those of us who have reached the summit of the range, or perhaps are tripping lightly down the western slope, the study of symptoms affords an interesting and instructive pastime; not necessarily in the aggregate as they exemplify some disease, but singley as an expression of some definite lesion. From this standpoint a brief and fragmentary study of the symptom "dyspnoea" may prove of interest.

Early French physiologists graphically proclaimed "the brain the heart and the lungs as the tripod of life," three candles, ministers of life, "which feed its sacred flame." McDowall's more modern attitude claims as essential for life, heart action supported by body heat, blood pressure in the aorta, adequate respiration, and the maintenance of blood neutrality.

"Breathing is the movement made by the body to maintain pulmonary ventilation—the external expression of the body for the need of oxygen and the removal of carbon dioxide." It varies in health with metabolic activity, being least active during sleep, more active when awake and after meals, and most active after sustained physical exercise, rising at this time several hundred percent. It is at this time that there is a crying need for oxygen in the cells, and an excess of carbon dioxide is delivered from the cells to the blood stream, carried by the blood stream to the pulmonary alveoli and there discharged with the expired air. The activity of pulmonary ventilation thus varies directly with the amount of work accomplished. "We may lay down as a general principle that other things being equal pulmonary ventilation will be proportional to metabolic rate." The carbon dioxide produced by metabolic activity is taken up in the circulation and acts as the natural stimulant to the respiratory centers in the medulla and pons producing with its greater concentration and tension more vigorous respiratory movements.

Merging into pathological conditions we have the well known rise of metabolism in fevers, about 7 per cent for each degree of fever also in leukaemia and thyrotoxicosis.

The mechanism of respiration includes a number of participating agents, the respiratory centers at the base of the brain, the vagi, the expansile thorax and diaphragm, the elastic lungs with their immense alveolar surface, the heart and blood stream, and the cells of the body bathed in plasma where "the real business of life is carried on." Disorder or inefficiency of any of these participating agents produce an upset in the even tenour of the respiratory rhythm.

*Read before the Weld County Medical Society.

The Hering-Breuer reflex is the name employed to describe the afferent impulse that passes up the vagus to the cerebral center at the close of inspiration as a signal that expiration is due and a similar impulse at the end of expiration. This is the nerve control of respiration. The respiratory centers at the base are under chemical control, the carbon dioxide of the blood being the activating agent. The ordinary respiratory movements of the thorax and of the diaphragm are usually involuntary in character. When these movements fail to remove carbon dioxide excess and deliver the requisite oxygen, the matter is then brought to the personal attention of the cerebral hemispheres. At this time not only must all physical activity cease but sometimes we are called upon to sit upright to allow the freer expansion of the thorax and descent of the diaphragm and sometimes it is necessary to utilize the accessory muscles of respiration to increase the tidal air.

Passing in brief review those parts which are concerned with or participate in the respiratory movements and also the lesions which may disturb their function, we note that the centers may become inactive due to an ascending sclerosis resulting in a respiratory paralysis. The nuclei may also become inactive because of increased intracranial pressure whereby the medulla is pressed down against the foramen magnum and its blood supply thus imperiled. The centers likewise may become exhausted by constant and continuous over stimulation. This condition obtains in chronic disease in which the blood contains a high carbon dioxide content the centers being stimulated to increase respiratory movement until without avail, and death is then due to exhaustion and failure of the centers. The term acapnia is applied to the opposite condition. There has been over ventilation, excessive respiration. which has so decreased the carbon dioxide content of the blood that not enough remains to stimulate the centers. This may be tested artificially by taking several deep breaths, there follows a brief period of apnoea. This is sometimes of clinical importance if operative measures are conducted during partial anaesthesia. Here the patient is subject to sensory stimuli which produce excessive respiration, the carbon dioxide of the blood is so diluted that insufficient remains to stimulate the center and with dulled hemispheres respiratory failure may ensue.

In health the elastic lungs expand and retract with the movements of the thorax. The greatest forced expiration is termed the vital capacity, the air which at this time remains in the lungs is the residual air, while the air of the average respiration is the tidal air. In emphysema there is diminution of the tidal air due to loss of elasticity of the lung tissue, there is likewise a slow interchange of gases in the lungs due to atrophy of the alveolar walls. Both conditions are responsible for the dyspnoea characteristic of this disease.

The result of conditions which obstruct the entrance of air into the lungs is evident. This may be an internal obstruction as in croup or asthma, it may be due to the external pressure of tumor bodies. In asthma the dyspnoea is peculiar in that expiration is prolonged. Inspiration is aided by the powerful accessory muscles, while expiration less efficient is due only to the elastic recoil. The tidal air is decreased, the residual air increased with an enlargement of the thorax. In pneumonia the dyspnoea is complex in character and requires more extended consideration than is here available.

Dyspnoea is one of the cardinal symptoms of cardiac failure and is due to a slowing of the pulmonary blood stream retarding the interchange of gases and causing the normal movements for ventilation to be ineffective. Likewise metabolism is said to be increased in cardiac diseases which imposes an additional burden of carbon dioxide to be eliminated. The slowing of the blood stream results from fatigue and failure of the heart muscle. Whatever the origin of the cardiac pathology, when failure occurs it is due to a weakness of the muscle which is unable to maintain the circulation.

In rheumatic hearts stenosis of the mitral valve is often present with a limitation of the cardiac reserve. Early in these cases the blood stream through the lungs is slowed,

especially on effort, hypertrophy of the right ventricle carries on for an indefinite time until final fatigue and failure ensue. In syphilitic hearts with disease of the aorta and aortic valves regurgitation occurs with immense hypertrophy of the left ventricle, cor bovinum, and Corrigan pulse. Prognosis is much less favorable than in rheumatic lesions and an earlier failure may be expected. In hypertonic conditions, the hyperpiesia of Allbutt, the high diastolic pressure creates an early hypertrophy of the left ventricle and the circulation is satisfactory as long as the cardiac muscle is able to maintain the systolic pressure at a correspondingly high level. Contrary to the usual opinion a dropping systolic pressure in these cases is not a favorable sign, as it indicates the inception of fatigue and failure. In the senile or arteriosclerotic group, with or without high pressure, the myocardium continues to functionate handicapped by an inadequate blood supply through narrowed and sclerosed coronaries. Sclerosis of the myocardium is the outcome with weakening and eventual failure. In all these types dyspnoea is due to the slow and retarded pulmonary circulation which does not permit a free and adequate discharge of carbon dioxide. The centers are thus under constant stimulation to increase pulmonary ventilation by more active respiratory movements.

The term cardiac asthma is applied indifferently to two types of cardiac dyspnoea. In the first type, usually after excessive effort there is an accentuation of the slow pulmonary circulation, it is retarded, fluid is exuded into the alveoli and pulmonary oedema follows. These attacks, too, are often nocturnal during recumbency and after the day's activity. The second type is concerned with the maintenance of the blood neutrality. Here there is often found a concurrent kidney lesion which prevents or limits the normal excretion of acid in the urine. The blood pressure and circulation are often well maintained. The neutrality of the blood may be regarded as the ratio between carbon dioxide in the blood and carbon dioxide as a bicarbonate. If instead of acid sodium phosphate, $H^2Na\ PO^4$, sodium acid phosphate, $Na^2H\ PO^4$, is excreted, there is retained in the blood an additional hydrogen content which has to be taken care of at the expense of the sodium base in the blood. This releases an excess of carbon dioxide and the blood neutrality is altered in the acid direction. To eliminate this additional burden and restore neutrality pulmonary ventilation is increased—so-called attacks of cardiac asthma.

In contra distinction to cardiac failure, circulatory failure is not attended by dyspnoea and has a different origin. Circulatory failure is somewhat akin to surgical shock, it follows septic and infectious diseases and is regarded as due to vaso-motor inaction. The blood accumulates in the systemic and splanchnic veins and circulation fails because the heart has an increasing deficiency of blood upon which to contract. The contrast between these conditions gives a working basis for digitalis therapy. As a general rule it is valuable in cardiac failure but inefficient in circulatory failure.

BIBLIOGRAPHY

MacKenzie, McDowall and Hewitt.

THE PRACTICE OF PHYSICK IN COLONIAL TIMES*

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In the 1600's, when the English laid the foundations of their colonies in America, there was general ignorance of the composition and processes of the human body. This age, the age of Shakespeare and Johnson, Francis Bacon and Galileo, was also the age of fetish cures and mysterious quack remedies—an age which discouraged anatomical study and looked with contempt upon the surgeon, the so-called barber surgeon, whose lancet brought him no more prestige than his razor.

While all Europe was tingling with the intellectual impulse given by the Renaissance, the Reformation, and the opening of the new

*Read before the Weld County Medical Society.

world, the science of health remained much as it was in the days of Charlemagne. The chief cause of error was the belief that disease is caused by diabolic influence. "It is demons which produce famine, unfruitfulness, corruptions of the air, and pestilences," said Orizen, and St. Augustine agreed. "All diseases of Christians should be ascribed to these demons." Gregory of Nanzianzen declared "pain, being inflicted by devils, should be cured by the laying on of consecrated hands." Martin Luther declared, "Diseases are naught else than the Devil's works."

These views, however, did not prevent Giles Firmin in 1640 reading to medical students on the basis of an "anatomy," or skeleton, which he had articulated. In 1662, Dr. Bryan Rossiter of Hartford did an autopsy on the Kelly child, yet this demonstration advanced science but little, as it proved that the girl had died of witchcraft.

It was reasoned that since God had made the universe for man, he must have put his sign on everything designed to serve as specifics for disease: "eye bright" for diseases of the eye; bugloss, resembling a snake's head, for snake bite; calendine, with a yellow juice, for jaundice, et cetera.

Observation and experience had brought to some few men, however, some faint conception of the real causes of disease. In 1610 on some vessels bringing immigrants to Virginia, a number of wretches developing plague or yellow fever were thrown overboard, showing that the authorities realized the danger of contagion. The "Laws Divine and Martial." published at Jamestown, displayed some knowledge of the laws of hygiene. "There shall no man or woman—dare to wash any unclean linen—nor rench and make cleane any kettle, pot, or pan—within twenty foote of the old well upon pain of whipping."

More typical of the times is a letter of 1634 from Dr. Stafford of London to Governor Winthrop of Connecticut concerning "a cure for smallpox plague, purples, and poison."

"In the month of March take toads, as many as you will, alive, put them in an earthen pott and cover with an iron plate, overwhelm the pott so that the bottom may be uppermost: put charcoals around about it; sett it on fire; lett it burn out; when it is cold, take out the toades, and in an iron mortar pound them very well. Moderate the dose according to the strength of the partie."

In England, James I and Charles I practiced the laying on of hands for the cure of scrofula and epilepsy. Charles II touched nearly a hundred thousand during the twenty-five years of his reign. In 1687 a pauper of New Hampshire petitioned the assembly for permission and assistance to go to England to be healed by the royal touch.

With such superstitions rife in England we are not surprised to find the American colonists profoundly ignorant of medicine. Governor Winthrop in 1656 recommends the following for "agewes": "Pare the patient's nayles when the fever is coming on: put the paringes into a little bagge of fine linen and tye that about a live eeles neck, in a tubbe of water. The eele will dye and the patient will recover". "Beans, pease, sadness, onions, anger, evil tidings, and the loss of friends were believed to be bad for the heart". "For fevers, take two salt white herrings and slit them down the back and bind them to the soles of the patient's feet."

The superstitious colonists valued highly the hocus-pocus of the Indians. The savages used native herbs for catharties and emetics and as remedies for various diseases. These herbs were soon borrowed by the whites, some being actually sent to Europe, where they enjoyed wide repute. Tobacco especially was thought to be a sure antidote for all poisons and to have the power of "expelling rheums and sour humours and of healing wounds and curing gout or ague".

The doctors were not only relatively inefficient and ignorant, but there were never enough of them for the needs of the people. Consequently the healing office was practiced by the clergymen—"an angelican conjunction" as Cotton Mather called it. Giles Firmin of Massachusetts and Gershom Buckley of Connecticut were prized as much for their physick as for their divinity. Gov-

ernor Winthrop spoke of Lambert Wilson, who was engaged by the Massachusetts Company to settle in the colony as "our chief surgeon". He agreed to educate several youths in medicine so they could assist him and succeed him when he retired.

In 1690 Boston had four doctors. In Virginia, Dr. John Pott was the most noted physician. He was physician-general for the colony and was active during the terrible epidemics which swept over the settlement during the early years of the century. He is described as "a Master of Arts well practiced in chirurgery and physic and expert also in distilling of waters, and possessing many other ingenious devices". On one occasion he made use of his accomplishments to poison a number of hostile Indians.

In New York it was said that "Quacks abound like the locust in Egypt and too many have recommended themselves to a full practice and profitable subsistence". In the colonies, medical practice was not regulated as in England, where every accredited doctor belonged to the College of Physicians; no licences were required and anyone with a superficial knowledge of medicine was at liberty to put up his sign. There were local apothecaries who sold either to the physician or his patients, but it was usual for the doctor to make his own physic and add the cost to his bill.

There were no facilities for medical training in America, and little inducement for English practitioners to migrate here. According to even 17th century standards, the Colonial doctors were sadly deficient in skill. Dr. Samuel Fuller, who came in the Mayflower, was typically ignorant, if we may believe Thomas Morton. "Dr. Noddy did a great cure for Captain Littleworth;" he says, "he cured him of a disease called a wife". Dr. John Clark, who died in 1661 at Boston, was the first regularly educated physician in New England. Quacks appeared on every hand. In 1649 Massachusetts passed a law to regulate the practice of medicine by chirurgeons, midwives, physicians, and others, but it seems to have accomplished little. In many communities the minister acted as doctor and mingled with his prayers for the sick of his parish, his plasters and doses of physick.

Bleeding was almost universal. It was supposed to free the patient of hostile humors, infant and aged alike. The practice continued even into the nineteenth century, and is said to have contributed to the demise of George Washington. In the south the care of the sick was intrusted to the planters' wives, who made periodic rounds in the slave or servant quarters.

Obstetrics was everywhere in the hands of women. In 1690 Rev. Samuel Lee writes that "of midwives everyone takes whom they please." In 1634 Agnes Williams of Virginia paid widow Holmes a dozen hens for attending her in confinement. In eastern Long Island midwives were elected in town meeting.

All the colonies were subject to epidemics which took a terrible toll in human life. In Virginia mosquitoes and unwholesome drinking water made malaria and dysentery almost universal. Three months after the landing at Jamestown sickness and death appeared. Molina, writing in 1613, declared, "Fifty per cent of newcomers died before they had been in the colony twelve months. June, July and August are very unhealthy and the English die there at this season very fast". The company took no adequate precautions to exclude infected persons from the immigrant vessels with the result that epidemics occurred at sea. One ship lost 130 out of 185. Both yellow fever and bubonic plague appeared and spread rapidly. Since there was little knowledge of quarantine or sanitation, epidemics ran their course unchecked and threatened to depopulate the country. In 1620-21, a thousand persons died on the way to Virginia or after landing. During the next year twelve hundred perished.

In 1654 cinchona bark was introduced into England. The price was eight pounds sterling a pound, but, brought to the colonies, it greatly reduced malaria mortality. Berkeley wrote in 1671; "Formerly not one servant in five survived the first year, but now most escape". This was after the use of quinine became common.

Smallpox appeared in New England during the 1630's and in 1678 the worst smallpox epidemic of the century. Cotton Mather wrote that "thirty-eight died in Boston in a week—above 340 in all."

In spite of the epidemics, the ignorance of hygiene and the crudeness of medical practice, it was not uncommon for the men and women of the time to live to a ripe old age. The records at Hingham, Massachusetts, give the records of 827 persons whose length of life is mentioned. Among these 105 lived to an age of 80 or over; 19 to 90 or over; and 3 attained the century mark. The explanation lies partly in the sturdiness of the stock, partly in the simplicity of the people's lives. The food was plain and wholesome; the work was hard but not enervating; their houses were not overheated; they were free from the nervous strain attendant upon life of today. They offered resistance to organic diseases, and if they escaped the epidemics, they were apt to live to an advanced age.

Notwithstanding the fact that a number of Hingham men lost their lives in the unfortunate expedition of Sir William Phips against Quebec in 1690, the expectation of life for a person attaining the age of twenty-one years was excellent. For males it seems to have been 41.3 years; for females 39.7 years, compared with a general average of 43 in the restoration area of the United States in 1920.

The record is especially remarkable for the women because of the large families so common during the seventeenth century. One hundred and fifty-three married graduates of Harvard from 1658 to 1690 had 808 children; an average per family of 5.21 compared with 3.09 in the years 1872 to 1879. Of these men, one had 20 children; one had 15; three had 14; three had 13; two had 12; seven had 11; fourteen had 9.

Cotton Mather tells us of one man who "had six children by his first wife and twenty by the second." "Another woman had twenty-three children by one husband whereof nineteen lived to men's and women's estate". The mother of Sir William Phips, governor of New England, "had twenty-six children—one and twenty sons and five daughters". Samuel Green, a Boston printer, had thirty children. William Rowson had twenty children by one wife.

Many women are mentioned who had twelve or more. It might be imagined that such large families would result in a heavy mortality among the mothers. Cotton Mather's first wife was married at sixteen, bore him ten children, and died at thirty-two. Many cases of early death may be found in the Hingham records, easily traceable to excessive childbearing, although many with nine to twelve children lived to the age of ninety and ninety-five. The average life of a married woman at Hingham was 61.4 years. Of 105 women who had 818 children, the average age at death was 65.5.

At Plymouth, Massachusetts, a gravestone tells a significant story: "Here lyeth ——— with twenty small children".

Ignorant of infant hygiene, mothers lost their small children in rapid succession. Cotton Mather tells of one mother who had twenty-two children—"whereof she buried fourteen sons and six daughters". The child mortality at Hingham was 33.3 per cent, 276 of the 827 persons whose ages are known, dying before reaching twenty-one. The percentage of males dying under two years was 22.2 per cent and of females 17.8 per cent. Perhaps fewer children would have succumbed if their diseases had been allowed to run their courses. The child had to encounter the additional peril of the doctor with his bleeding and physic. Imagine measles or smallpox treated with Venice treacle, vipers, white wine, opium, spices, licorice, red roses, St. John's wort, and twenty other ingredients!

Six times in a hundred years smallpox threatened to depopulate New England. Zabdill Boylston of Boston was the first to inaugurate the custom of inoculation for the disease. It was fiercely and malignantly opposed, but its success soon conquered the opposition. The Salem Gazette, April 22, 1784, advertises that Point Shirly was set aside for a smallpox inoculation. Also certain of the aristocracy would have a sort of house party, inviting their friends to come and join in the inoculation and spend the

time of "grafting", "breaking out", "sweating", and "scaling off", together. Certain doctors also established private retreats for the same purpose, and in 1772 one "Ibrahim Mustaffa, Inoculator to the Sultan of Turkey", advertised his wares in the form of an "Inestimable instrument, the Circassian needle". He boasted that he had just come from Constantinople, where he had inoculated 50,000 without losing a patient. The quacks surely advertised then, as now!

Cotton Mather and all the early parsons seemed to turn eagerly to medicine and to practice it. Three presidents of Harvard College preached and practiced medicine. A parson, Thomas Thatcher, wrote the first medical treatise published in America on "Brief Rules for the Care of the Small Pocks". Innkeepers, magistrates, grocers, and schoolmasters were doctors, too. So vast was the confidence of the community in some or any kind of doctor and in self-doctoring—which was more common—that as late as 1721 there was but one regular graduate physician in Boston, Dr. Samuel Douglas, and he was one of the most decided opponents of inoculation for smallpox.

Alice Moore Earle in "Customs and Fashiones in Old New England," says that a great number of the cook books of the seventeenth and eighteenth centuries were written by physicians. Dr. Lister, physician to Queen Anne, wrote plainly: "I do not consider myself hazarding anything when I say no man can be a good physician who has not a competent knowledge of cookery." Miss Earle has in her possession a book of 450 pages printed in 1656. Its contents comprise three parts, or books: first, "The Queen's Closet Opened, or The Pearl of Practice". Accurate Physical and Chirurgical Receipts; second, "A Queen's Delight, or the Art of Preserving, Conserving, and Candying, as also a Right Knowledge of Making Perfumes and Distilling the Most Excellent Waters"; third, "The Compleat Cook, Expertly Prescribing the most ready wayes, whether Italian, Spanish or French, for Dressing of Flesh and Fish, Ordering of Sauces, or Making of Pastry".

This conjunction of leechcraft and cooking was in early days far from being considered demeaning to the healing art. Inscribed in the cover of this book in faded ink were the names, "Edward Talbot, His Book" and "William Moore, His Book in the year 1710, Boston".

This country doctor had not studied in college or hospital. He had simply ridden with an old-established physician. He had cared for the doctor's horse, swept the office, run errands, pounded drugs, gathered herbs and mixed plasters until he was fitted to ride for himself. Perhaps this book and a few Latin treatises which he could hardly decipher formed his entire pharmacopoea. As he chanced to inherit some money, he became a physician of note, since wealth and position were as essential as learning and experience to enable one to become a good doctor in Colonial times.

Miss Earle describes the pompous old doctor a-riding out to see his patients, clad in his suit of sober brown or claret color, with shining buttons made of silver coins. The full skirted coat had great pockets and flaps, as had the long-waist coat that reached well over the hips. Knee breeches and fine silk stockings and buckled shoes displayed his well turned calves and ankles. On his head were a cocked hat and wig. Wigs he had of different sizes and dignity, but his every-day riding wig was a commonplace affair of horse hair with a stiff eel-skin-covered cue.

One night the doctor decided to remain all night with a fever-ridden patient. Physician and nurse and good wife talked and droned on; the sick man moaned and tossed and begged fruitlessly for water. Finally the old doctor nodded, bringing his eel-skin cue near the flame of the candle on the table. Then suddenly there was a great explosion!

When the smoke cleared away the nurse and wife were under the bed. The doctor stood, scorched and bare-headed, while the sick man had jumped out of bed, grabbed a pitcher of water, drunk half the contents, and thrown the remainder over the doctor's head.

When the doctor's new wig arrived from Boston he ordered his negro servant to powder it and was horrified to see the negro dust it well from the powder horn instead of with starch from the dredging bore. This explained the explosion of the old wig.

It is said that the sick man quickly recovered, either because of the good laugh he had at the doctor's dilemma or because of the water he drank during the confusion. He had probably been purged and bled to the limit and perhaps dosed on the celebrated fever medicine known as "The Water of Life". This is the recipe: "Balm leaves and stalks; betony leaves and flowers; rosemary; red sage; taragon tormentil leaves; rossalis and roses; carnation and hysop, and many more. Bruise these herbs, put in an earthen pot and cover and pour over them enough white wine to cover them. Let them steep for eight or nine days, then put to it cinnamon, ginger, angelica seeds, cloves and nutmegs, of each an ounce; a little saffron and of sugar one pound; the legs and loynes of an old coney, a fleshly running capon, the red flesh of the sinews of a leg of mutton; four young chickens, twelve larks, yolks of twelve dozen eggs, a loaf of white bread cut in sops; two or three ounces of mithradate or treacle, and as much muscadine as will cover them all. Distil all with a moderate fire, and when no more comes by distilling, put more wine into the pot and distil it again. This water strengtheneth the spirit, brain, heart, liver, and stomack. Take when need is, by itself or with ale, beer or wine mingled with sugar".

Plainly here do we see the need of a doctor being a good cook and bartender. Often the "skins of snakes or adders, slow worms, the bellies of skinks, and pearl, red coral, ambergris, and beaten gold" seemed to make potent medicine.

Some prescriptions in the "Queen's Closet" are to cure people at a distance, by applying the nostrum to a linen cloth previously wet with the blood of the patient. Plasters on the back of the head would draw the palate into place; wonderful elixirs would keep a dying man alive five years; herb juices would make a dumb man speak. The "medicine Mithridates", a cure all of King Mithridates, forms part of many prescriptions and was regarded as a soporific. Forty-five different ingredients enter into it. Some of them, "the rape of storax, camels' hay, and the bellies of skinks", must have been difficult to procure in New England.

Medicinal herbs and plants not found in America were brought from Europe by the hundreds, and every family had its own medicine garden. The New Haven colony passed a law at an early date to force the destruction of a great stinking weed, the Datura Stramonium Jimson, or Johnstown weed, brought over by the Jamestown colonists. Cotton Mather said the most useful and medicinal plants were alehoff, garlic, elder, sage, rue, and saffron.

Physicians' fees were "meene enough": six pence a visit in Hadley and Northhampton in 1730, and only eight pence in Revolutionary times. A blood letting or tooth drawing cost eight pence extra. The scanty fees were eked out by compounding and selling their own medicines. Naturally the doctor would dose them well and often!

As for hospitals, there were none during the first hundred years. The Virginia Company ordered that "four Guest Houses" be built to take care of the sick. The Dutch had what they called a hospital at New Amsterdam in 1658, but the first equipped hospital was established in Philadelphia in 1752, and the first medical school in 1765.

The seventeenth century in Europe was marked by certain great figures, pointing the way to better things in medical science. In 1628 William Harvey published his treatise on the circulation of the blood, which revolutionized medicine and gave a death blow to the slave-like adherence to Galen. In 1661 Malpighi exhibited the corpuscles in the blood. Robert Boyle was laying the foundations of the science of analytical chemistry.

But these things found no reflection in America. Colonial medicine was less efficient in 1690 than it had been in 1640, for the physicians of the second generation had more imperfect training than those who emi-

grated from England. An apprenticeship with an older doctor and a short course of reading in medical books were probably the extent of the equipment of the native practitioner in the colonies.

BIBLIOGRAPHY

"A History of American Life"—Schlesinger and Fox.

"Hawkers and Walkers in Early America"—Richardson Wright.

"Customs and Fashions in Old New England"—Alice Moore Earle.

OBSERVATIONS ON INFLUENZA*

With Report of a Case

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Among diseases of unknown etiology, influenza probably ranks foremost in point of interest. With its perennial incidence, periodic outbreaks and consequent toll of human lives, it is justly regarded as a deadly enemy of mankind. Other formidable diseases have in comparatively recent times, by virtue of the discovery of causative agents, been rendered innocuous or at least amenable to scientific methods of prevention and control; but not in the case of influenza. It is still as in centuries past a great unconquered enemy.

Epidemics of influenza have afflicted mankind since ancient times, but the first account on record is said to have occurred in the year 1173. About two centuries later a certain writer mentions a disease-epidemic which he characterized as an "Influenza de Freddo"—an influence of cold. This expression probably gave birth to the term we now employ—influenza. Records show periodic outbreaks to have occurred with more or less regularity in the centuries then following. Coming down to the beginning of the nineteenth century we find records of epidemics, many of which assumed proportions of pandemics. In 1847 physicians began to realize more and more its dangerous complications—such as the pneumonias. A pandemic of great severity passed over the earth in the years 1889-90. It was during this outbreak that Pfeiffer and Beck made their original investigations and reported, in 1892, their discovery of the specific organism, the bacillus of influenza which later became known as the Pfeiffer bacillus. For a time the findings of Pfeiffer and Beck were quite generally accepted, but in the pandemic of 1918 many investigators openly denied the specificity of the influenza bacillus. While denying the specificity the latter had nothing new to offer. It was hoped that the outbreak in 1918 would show a clearing up of causative factors, but there still exists a great diversity of opinion as to the bacteriological etiology of influenza. In fact, since 1918 and up to and including the epidemic of last year, nothing noteworthy has been accomplished.

In view of the foregoing, the question can with good reason be asked, why failures thus far in the discovery of the causative organisms of influenza have been so constant. Surely better facilities in the way of equipment, and many better qualifed bacteriologists are now available than ever before in the history of medicine. Is it possible, perhaps, that in this disease we have unique conditions confronting us, necessitating new methods of procedure and along heretofore unfamiliar lines of research? The suggestion has often been made that we have here to deal with a filterable ultra-microscopic organism. But even ultra-microscopic organisms have been made to grow and to be studied. The question is persistent, but the answer is not forthcoming.

In the epidemic of 1918 while in the army service and stationed at the base hospital at Fort Riley I, as chief of the laboratory service, received orders from the Surgeon General's office to institute research along the lines of pathology and etiology of influenza. In complying with this order my whole department concentrated in the prosecution of this work.

We began by taking cultures from the nose and throat of some 300 patients ill at the time. Nearly 800 specimens of sputum

*Read before the Weld County Medical Society.

were carefully run. A large number of blood cultures were taken and studied. Also a series of fifty autopsies were done with the object of studying the bacteria found in the various organs, tissues and exudates.

After completion, a report of this work was sent to the Surgeon General's office giving in detail our findings.

I shall not take the time here to give the results of our studies and observations, save only to mention that antemortem and postmortem findings agreed to a surprising extent in regard to the organisms most commonly found in the tissues and exudates of these patients. It may interest you to know that the influenza bacillus, the strepto-pneumococcus group and the *micrococcus catarrhalis*, were the bacteria most frequently recovered from both ill patients and those dead.

My conclusion at that time was, that, since the regularity of the appearance of these groups was obviously more than mere coincidence, we felt warranted in assuming some existing relationship between these bacteria and the disease known as influenza. In fact I went so far as to designate these three groups as a "Malignant Trio" in their relation to the disease. I have not since found occasion to materially change my attitude in this matter.

I am fully cognizant of the extensive experiments which have been conducted with the use of various bacteria upon healthy monkeys and human volunteers, the object being to reproduce the disease in the subjects—without conclusive results. Because of these facts, I still hold to the opinion that the aforementioned trio is concerned in some manner in producing the disease. I am inclined to believe that not a single organism, nor one of the three mentioned, but all three of the latter acting in symbiosis, by their metabolic activities liberating toxins which, when a certain concentration has been reached, or perhaps, when a certain relative admixture of toxins has been produced, cause the disease to appear and sometimes with dramatic violence. However, time and further research may disprove my theory.

It is generally observed during the progress of influenza that, while the entire body is manifestly involved, there is a tendency for some organ or group of organs to be affected more particularly. The patient uses the expression "It settled in my back," for example.

I believe with some of the older writers that there are certain distinct types, such as respiratory, nervous, gastro-intestinal and so on. Not only does experience show this to be true, but one single organ is oftentimes involved, either as a complication or as a sequal. Now just why, in the case of one individual, the disease seems to concentrate in one particular organ, and in the case of another individual the same happens to another organ, is difficult to explain. Perhaps a pre-existing organic weakness is the determining factor. Again, perhaps a certain chemical tissue condition exists or develops, such, for instance, as a condition of hydrogen-ion concentration or oxygen tension, to account for increased vulnerability. At any rate, be the cause what it may, tissues other than lung tissue are frequently involved and at times with tragic consequences. In connection with the latter phenomenon, namely, tissue vulnerability. I wish to report a case which occurred in my practice during the height of the late influenza epidemic:

On December 16th I was called by telephone to visit a patient, six miles south of Kersey, whom they said was not getting along as well as could be expected. I saw him soon after the call came. He stated that about six weeks before, he had the usual symptoms of the flu, but had not been very ill at any time. He was not regaining his strength—in fact, was growing weaker. He was dressed and lying on a couch.

I had known this man and his family upwards of twenty-four years, having been his family physician nearly all this time. He came to Colorado as a boy and had never resided elsewhere since coming to this state. He was a farmer by occupation and had always been strong and healthy with the exception of an attack of influenza in 1918, during which time he had not fully recovered his strength until the lapse of about

three months. He was now 53 years of age.

Physicial examination showed a man pale and haggard, presenting the actual appearance of a convalescent from influenza. There was some cough, some coarse rales in both lungs. Temperature 99 degrees. I left instructions to send a specimen of urine to the laboratory. Urinalysis showed sp. gr. 1012, acid in reaction, trace of albumin, few pus and red cells, no casts. The next day I found a slight jaundiced appearance of the sclera and skin. He complained of lack of appetite and some distress of stomach and bowels. The blood count at that time showed leucocytes 10,200. Another specimen of urine gave a yellow foam on shaking.

On December 20th, pain developed in right lower chest, associated with increased cough, blood-streaked sputum and elevation of temperature. In two days this condition had abated. About this time he began having chills, followed by sweats and irregular temperature. He became very nervous, could not sleep at night, and was prone to weep, the latter a most unlikely thing for a man of his type to do.

I could detect no increase in the area of liver dulness, nor marked pain on pressure of gall-bladder region. The feeling of weakness, the chills which were often of the shaking kind, the drenching sweats, persisted. The urine did not at any time show a lessening of bile. The stools were putty-like.

Having had in my practice several cases of catarrhal jaundice following influenza, I did not at first feel any particular concern, but as the symptoms showed no abatement, I began having misgivings. I had in mind the possibility of acute suppurative hepatitis—in fact this was my diagnosis during a period of three weeks. I also thought of acute yellow atrophy.

The patient persistently refused to be taken to the hospital, but finally gave his consent. After his removal to the hospital he lived but a short time, dying on January 20th. Only during his last six hours did he complain of actual pain in his right side, epigastrium and back.

Autopsy was done shortly after his death. He was a muscular male 53 years of age, about 65 inches tall and weighing 160 pounds. A slight yellowish tinge of the sclera and to a less extent of the skin was noticed. Incision showed normal subcutaneous fat. Heart, mediastinum, pericardial fluid, left lung and pleura, negative. Lower lobe right lung and pleural surfaces showed evidence of recent inflammation. Kidneys, stomach and intestines were negative though the stomach was greatly distended with gas. Spleen somewhat enlarged. Bladder and prostate negative. Gall bladder negative. The liver was enlarged, occupying space towards the left of median line. It was removed *in toto* and seemed about a third larger than normal. The right lobe was tense and darker in color. Incision across the right portion of right lobe opened an abscess cavity containing about 500 cc. of thick pus. The outer wall of the abscess at its thinnest part was 1 cm. from the external surface of the right lobe of the liver. The abscess consisted of one large cavity with several broken down necrotic septa. Smears of the pus showed pus cells and few Gram-negative, short, slender rods, some of which were intracellular, having the morphology of influenza bacilli.

Very little additional comment is necessary. The diagnosis of a primary influenzal infection was based upon the history; the fact of its occurrance during the epidemic; and of other members of the household having similar symptoms at about that time. Assuming that influenza was the primary infection, we have here an example of tissue vulnerability or of bacterial selectivity involving the liver, producing a hepatitis followed by abscess formation.

Had the history of the patient shown a former intestinal infection of a parasitic order such as is acquired in warm climates and less frequently in this country, I would probably have been on the lookout for liver abscess. Had I in my limited experience ever before encountered a case of like character, I might have been in position to make a diagnosis early enough to institute proper treatment and thus give the man a chance for his life.

NEWS NOTES

Dr. William Senger, Pueblo, president-elect of the Colorado State Medical Society, has been appointed chief surgeon of the Colorado Fuel & Iron Co., succeeding the late Dr. Richard Warren Corwin. Dr. Senger formerly was assistant to Dr. Corwin, and has been affiliated with the C. F. & I. for twenty-five years. Dr. Corwin's memory was honored by the board of directors of the C. F. & I. when, by resolution, the widely-known Minnequa Hospital at Pueblo was officially re-named Corwin Hospital.

* * *

Reappointment of three members of the State Board of Medical Examiners has been announced by Governor Adams, all for six-year terms Those reappointed are Drs. E. B. Swerdfeger, retiring president of the board, and William Whitridge Williams, both of Denver, and Dr. Frank R. Spencer, Boulder. Dr. Harry R. McGraw, Denver, was elected president of the board to succeed Dr. Swerdfeger, and Dr. Williams was elected secretary, succeeding Dr. Philip Work.

* * *

The State Board of Medical Examiners revoked the license of Dr. Jasper C. Holland, Nederland, on July 2, following Dr. Holland's conviction on charges of violating the federal narcotic laws.

* * *

Dr. H. J. Corper, Denver, was re-elected secretary-treasurer of the American Society of Clinical Pathologists at the Society's annual meeting in Portland in conjunction with the annual session of the American Medical Association. Dr. Philip Hillkowitz, Denver, was elected to the board of registry of technicians at the same meeting.

* * *

Dr. T. E. Carmody, Denver, was elected president of the American Bronchoscopic Society at the annual meeting of the organization recently in San Francisco.

* * *

Dr. Hugh L. Taylor, Denver, was elected vice president of the Union Pacific Association of Railway Surgeons at the annual meeting of the organization recently in Omaha.

* * *

One hundred and forty members of the Indiana and Ohio State Medical Associations and their families, en route by special train to the A. M .A. meeting in Portland, Ore., stopped for a half-day in Denver, June 29. They were taken on a tour of the Denver Mountain Parks, and a few played golf at Lakewood Country Club. The party was welcomed on behalf of the Colorado Society by Mr. Harvey T. Sethman, executive secretary, and a number visited the new executive office and the Denver County Medical Society Library. A smaller party of the New York Medical Society visited Denver for part of the day July 1, and returned on the way back home for a three-day stopover July 19 to 21.

* * *

The Lutheran Hospital at Alamosa has finished installation of a complete x-ray equipment, purchased from the Victor X-ray Corporation of Chicago.

* * *

Dr. A. W. McArthur, Delta, has sold his practice to Dr. Lawrence L. Hick, Jr., of the same city. Dr. McArthur announced he will retire from active practice.

Dr. A. F. Williams, Fort Morgan, has started construction of a clinic building adjoining his home.

* * *

Dr. Grant S. Peck and Miss Margaret F. Gill, formerly his office assistant in Denver, were married June 8 in Tijuana, Mexico. After a honeymoon on the coast they returned to Denver early last month to make their home.

* * *

Miss Hester Rohwer, formerly city health nurse of Boulder, has been appointed to fill the vacancy caused by the resignation of Dr. J. H. Bush as director of public health for the city.

* * *

Maj. William G. McKay, medical corps, stationed at Fort Logan, has received orders transferring him to the Philippine Islands. He will sail in December. Maj. Ned O. Lewis, medical corps, now stationed at Balboa, Canal Zone, has been ordered transferred to Fitzsimon's General Hospital.

* * *

Dr. W. P. Verity, Two Buttes, has recovered from influenza that confined him to the Charles Maxwell Hospital early in July.

* * *

The office of Dr. B. G. Carson, Englewood, secretary of the Arapahoe County Medical Society, was robbed July 4. A quantity of morphine tablets and two revolvers were stolen.

* * *

The executive secretary's office is in receipt of an application for a charter for the Crowley County District Medical Society, formed July 9 at a meeting of physicians in Ordway, Colo. When necessary formalities have been carried out, the application will be presented to the House of Delegates for approval or rejection at its first meeting, Sept. 2, at Greeley. Officers of the Crowley County Society, named in the charter application, are: President, S. A. Bryan; vice president, E. O. McCleary; secretary, J. A. Hipp; treasurer, A. W. Graham.

* * *

Dr. Hubert Work, long a leader of the profession in Colorado and in recent years a leader in national politics, has announced his retirement from all political offices. He will return to private life, changing his residence from Pueblo to Denver, and will have offices with his son, Dr. Philip Work. Dr. Work, founder of Woodcroft Hospital at Pueblo, first entered national politics as assistant postmaster general in 1921, and successively became postmaster general and secretary of the interior. He resigned the last-named position to be chairman of the Republican national committee in the last campaign, and now has submitted his resignation to the party, to become effective Sept. 1. Dr. Work is a former president of the American Medical Association.

* * *

Dr. Dare Woodruff, member of the 1907 class of Denver and Gross, visited friends in Denver late in July on his way back home from the A. M. A. meeting. Dr. Woodruff has for several years resided and practiced in Vineland, N. J.

COUNCIL ON PHARMACY AND CHEMISTRY

A late bulletin from the Council on Pharmacy and Chemistry of the A. M. A. announces the following products as accepted:

Parke, Davis & Co.:
Ampoules of Pitocin.
Ampoules of Pitressin.

Notes on the Annual Session

Greeley, Sept. 3, 4, 5, 1929

A complete pamphlet program for the Annual Session will be mailed to all members on or about August 10. Watch for it.

The Scientific Program, with the exception of two additions made since, was published in the July issue of Colorado Medicine. The additions are:

Dr. Reginald Canti's Film, one of the most remarkable films ever presented before the Society. Prepared by Dr. Canti for the Imperial Cancer Research Institution, London. It contains three reels, one devoted to the growth of normal living cells in culture media, another to the growth of cancer cells in culture media, and a third showing the effect on these same cells after treatment with radium. It will be demonstrated by Dr. Florence Sabin of the Rockefeller Institute, New York, Tuesday, Sept. 3, at 8 p. m. The demonstration will be open to laymen as well as to members.

If time permits, Dr. Emory J. Brady, Colorado Springs, will read a paper Wednesday morning on the tuberculosis research commission authorized by the last legislature.

The Local Arrangements Committee, headed by Dr. N. A. Madler, chairman, has evolved a program of entertainment that deserves special comment even before publication of the pamphlet program. A number of surprises have been planned and they will not be revealed here. But here is the general entertainment program in brief:

Tuesday, September 3

12:30 p. m.—Complimentary luncheon given by the Weld County Medical Society to all members of the Colorado State Medical Society and their families. Campus of State Teachers' College.
H. W. Averill, M.D., Chairman.

2:00 p. m.—Complimentary Golf Tournament. Greeley Country Club.
Burgett Woodcock, M.D., Chairman.

2:00 to 5:00 p. m. — Tennis courts and indoor, warmed swimming pool on College Campus open to members and families.

2:00 to 5:00 p. m.—Indoor Baseball; athletic (?) contests; handsome (?) prizes. On College Campus.
W. F. Spaulding, M.D., Chairman.

8:00 p. m.—Dr. Canti's Film. Prepared for Imperial Cancer Research Institution, London. Demonstrated by Dr. Florence Sabin of the Rockefeller Institute. Open to the public. Little Theater, Administration Building.

9:00 p. m.—President's reception and dance; Jubilee Singers; other informal entertainment. Woman's Club House, on College Campus.
C. A. Ringle, M.D., Chairman.

Wednesday, September 4

12:30 p. m.—Executive Secretary's luncheon for secretaries of Constituent Societies. Angell's Tea Room, opposite College Campus.

7:00 p. m.—Annual official subscription banquet, informal. Gymnasium of College Campus.
Charles B. Dyde, M.D., Chairman.

9:30 p. m.—Informal dance following Annual Banquet. Gymnasium of College Campus.

SPECIAL NOTICE!

All material for the pamphlet program MUST be in the hands of the Executive Secretary, 466 Metropolitan Bldg., Denver, by Aug. 6. This means that if you have something for the Scientific Exhibit, the title and description should be in the hands of Dr. N. A. Madler, Chairman, Greeley, by Aug. 1. It also means that if you have x-ray films for the x-ray exhibit, the number of films and descriptive titles should be in the hands of Dr. John S. Bouslog, Chairman, Metropolitan Bldg., Denver, by Aug. 4. Material arriving later cannot be published in the program.

No one need worry about room accommodations at Greeley. There will be rooms for 1,000 if that many only will come to the Annual Session.

BUT, it will be a great help to the Committee on Local Arrangements to have the reservations made EARLY. Write to Dr. Madler and tell him how many will be in your party.

Bring your swimming suits. Bring your tennis racquets. Bring your golf clubs. This applies to both men and women. There'll be fun as well as work.

And, speaking of the ladies—

Let your wife read this copy of Colorado Medicine, and open the page for her to the following resume of the Women's Auxiliary program:

Tuesday, September 3

9:00 a. m. to 5:00 p. m.—Registration at Auxiliary Headquarters, Woman's Club House on College Campus.

11:00 a. m.—Meeting of Executive Board. Woman's Club House.

12:30 p. m.—Complimentary luncheon given by the Weld County Medical Society and its Auxiliary to the Colorado State Medical Society and Auxiliary. College Campus.

2:00 to 4:00 p. m.—Tennis courts and indoor, warmed swimming pool of College Campus open to Auxiliary.

2:00 to 4:00 p. m.—Joint entertainment of nonsensical field events with Colorado State Medical Society.

4:00 p. m.—Musicale and tea by the Weld County Auxiliary. Woman's Club House, College Campus.

8:00 p. m.—Dr. Canti's Film, to be demonstrated by Dr. Florence Sabin of the Rockefeller Institute. Little Theater Auditorium, Administration Building

9:00 p. m.—President's reception and dance; Jubilee Singers; other informal entertainment. Woman's Club House, College Campus.

Wednesday, September 4

10:30 a. m.—Business meeting and election of officers. Woman's Club House, College Campus.

1:00 p. m.—Subscription bridge luncheon; table prizes. Greeley Country Club.
7:00 p. m.—Annual official subscription banquet, informal. Gymnasium of College Campus.
9:30 p. m.—Informal dance following Annual Banquet. Gymnasium of College Campus.

Local Hostesses: Members of the Women's Auxiliary to the Weld County Medical Society, Mrs. J. A. Weaver, President.

Thursday, September 5

All Day—Informal drives, swimming, golf, tennis.
10:30 a. m.—Meeting of new Executive Board; Woman's Club House, on College Campus.

EXECUTIVE COMMITTEE MEETING

The first of what in the future are expected to be monthly meetings of the Executive Committee of the Colorado State Medical Society was held Saturday evening, July 13, in the office of the executive secretary, 466 Metropolitan Bldg., Denver. Those attending included President S. B. Childs, Treasurer L. W. Bortree, Secretary F. B. Stephenson, and the executive secretary, Mr. Harvey T. Sethman.

Several matters of concern to the entire membership were discussed and acted upon as follows:

President Childs was instructed to appoint a special committee at once to draw up and present to the House of Delegates a suitable amendment to the By-Laws which will define the duties of the secretary and executive secretary, under the new arrangement of officers.

Dr. Bortree and Mr. Sethman were given authority to design and put in operation a new and more comprehensive system of bookkeeping for the Society, and to revise the voucher-check forms to conform to the new system.

The committee voted to transfer $200 to the First National Bank of Denver as a revolving fund for the executive office, and as a repository fund for the receipt of dues and other payments pending monthly remittances to the treasurer by the executive secretary.

Mr. Sethman was authorized to take the preliminary steps toward complete reorganization of the card-index register of members, with a view to expanding it into a record of all physicians in the state. The committee voted that this system, as well as an addressograph and mimeograph installation for sending periodic bulletins to the officers and membership, should be presented to the House of Delegates by Mr. Sethman, for consideration at its first meeting, Sept. 2.

Mr. Sethman was instructed to take the necessary steps toward placing the Society on an efficient budget basis, and to draw up a tentative budget and a complete tentative program for the activities of the executive office for the coming year, all for presentation to the House of Delegates for its approval.

The committee voted that in the future all salaries and regular bills shall be paid on a monthly basis, instead of quarterly. It was decided that the executive secretary should be allowed 7 cents per mile for the use of his automobile while traveling for the Society, and should submit standard expense accounts for all other traveling expense, rather than be paid a set per diem for travel.

Tentative approval was given to a new system for the submission of annual reports by the secretaries of constituent societies, designed by the executive secretary as a means of simplifying this work for the secretaries. The committee voted that this should be submitted with the proposed budget to the House of Delegates.

The executive secretary was authorized to use whatever space in Colorado Medicine is in his judgment necessary to report the activities of his office and of committees, and for publication of general news about the constituent societies and membership.

JEFFERSON DEMETRIUS GIBSON

Dr. Gibson, member of the Medical Society of the City and County of Denver, died June 17 at the age of 66 years.

Dr. Gibson was a native of Moulton, Ala., and was graduated in 1887 from the Medical College of the University of Alabama at Mobile. He established his home in Denver in 1904, was licensed in Colorado the same year, and since that time had been continuously a member of the Denver Societa, the Colorado State Medical Society, and a fellow of the American Melical Association. He also was a member of the Radiological Society of North America, and specialized in tuberculosis and electro-physical therapeutics.

SAN LUIS VALLEY MEDICAL SOCIETY

The regular meeting of the San Luis Valley Medical Society was held at Monte Vista, Colorado, May 15, 1929, in conjunction with the San Luis alley Dental Society.

The program included an interesting paper on "Tuleremia" with a review of several cases by Dr. E. K. Carmichael of Center, followed by discussion by Dr. R. J. Day and Dr. T. F. Howell.

The principal lecture of the evening was "Club Feet" by Dr. Chas. M. Spicer of Denver. A case of congenital club feet was presented during the course of the lecture in which Dr. Spicer began the treatment.

Following this Dr. Spicer gave a short talk on each of the following subjects: "Whitman's Fracture," "Congenital Hip," "Erb's Paralysis."

The Socety extends appreciation to Dr. Spicer for this interesting lecture.

We hope to have many more of these practical lectures during the year.

The next meeting will be held at Alamosa, June 12th, 1929.

SIDNEY ANDERSON, Secretary.

"Crime Can Be Prevented"

"Crime can be prevented" is the slogan of the campaign which Massachusetts is waging against that hydra-headed monster. And what are the means recommended to bring about this result? More mental clinics, more visiting teachers, supervision of boys from the time they leave school until they secure jobs and the promotion of boys' clubs. These recommendations are based upon the findings of a two-year study of the records of youthful offenders and of 12,000 normal public school children by the Massachuetts Advisory Council on Crime Prevention as reported to the state commissioner of correction.—Childrens Bureau.

"You are the most beautiful girl I've ever seen! I long to hold you in my arms, to caress you, to kiss your eyes, your hair, your lips—to whisper in your ear, 'I love you!'"

"Well, I guess it can be arranged."—Tawney Kat.

WYOMING SECTION

President, C. W. Jeffrey, Rawlins — First Vice President, R. H. Sanders, Superior
President-Elect, E. L. Jewell, Shoshoni
Secretary, Earl Whedon, M.D., Sheridan — Treasurer, Evald Olson, M.D., Lovell
Delegate to the A. M. A., Geo. P. Johnston, M.D., Cheyenne — Alternate, J. H. Holland, Evanston
Councilor, C. Y. Beard, Cheyenne
Member of Medical Defense, Earl Whedon, M.D., Sheridan
Chester Harris, Basin — F. A. Mills, Powell

EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT



CHARLES WIKOFF JEFFREY
President Wyoming State Medical Society

CHARLES WIKOFF JEFFREY

Rawlins, Wyo., July 18, 1929

Dr. Charles Wikoff Jeffrey, the president-elect of the Wyoming State Medical Society, was born Nov. 2, 1883, in Polk county, Neb. He was graduated from the Osceola (Neb.) High School in 1902. Later he took a commercial course in Omaha and worked at clerical work for several years. In the government drawing of the ceded portion of the Shoshoni Indian Reservation in 1906 he drew a number and homesteaded a quarter section, hence his introduction to Wyoming.

In 1911 he decided to take up the study of medicine and entered the College of Medicine, University of Illinois, Chicago, where he graduated in 1915. Served as an interne in the St. Louis City Hospital, June, 1915, to January, 1916; Chicago Lying-in Hospital and Dispensary, April to November, 1916, and Cook County Hospital, Chicago, December, 1916, to August, 1918. Served as 1st Lieut. M. C. U. S. Army, Southern Department, August, 1918, to March 18, 1919. Married Genevieve Ronald, U. S. Army nurse, March 21, 1919. Practiced in Lander, April to September, 1919, and then moved to Rawlins, where he has been in general practice for the last ten years.

THE CASPER MEETING

One of the finest meetings ever held by the Wyoming State Medical Society was held June 24th and 25th at Casper.

The city of Casper and the Casper doctors and their wives have in the past been noted for their fine hospitality, but this year they outdid their past reputation in their fine arrangements and splendid entertainment. From the time of arrival to that of their departure every visitor was made to feel at home and everything that could be done for their pleasure and entertainment was done.

The smoker for the men at the Henning Hotel was a true get acquainted meeting where old friendships were renewed and new ones formed.

The Casper ladies took charge of the visiting doctors' wives and entertained them as they wished.

The clinics Monday and Tuesday morning were interesting, well conducted, worth while and largely attended. We feel that this form of teaching will, at each annual meeting in the future, become more valuable and interesting.

The House of Delegates met at 11 a. m. and all societies were represented except the Albany County Society.

Official reports were made and considered, officers elected and all business was transacted without any opposition.

The scientific session in the afternoon in the Elks' Club was well attended and carried out as printed in the program.

These papers were most interesting and their discussion was general and many side lights were developed.

A splendid banquet was enjoyed at the Henning Hotel in the evening and the speeches were not the usual after-dinner type, but in place of funny stories the speakers presented subjects of vital importance.

The banquet was tendered to the visiting doctors, their wives and guests by the members of the Natrona County Medical Society and on every hand you heard the expression that it was the best banquet the Wyoming State Medical Society had ever been honored with.

Following the banquet the entire party were taken to the Casper Country Club and dancing was continued into the small hours of the night.

Tuesday the golf fans enjoyed games early in the morning and the scientific session in the afternoon was so interesting that all stayed until the last paper was read and discussed.

The out of state visitors were: Dr. C. A. Roeder, Omaha; Dr. R. H. Young, Omaha; Dr. C. E. Cooper, Denver; Dr. Philip Hillkowitz, Denver, and Dr. H. A. LaMoure, Pueblo.

Sheridan was selected for the 1930 meeting place and about the middle of July as the time of meeting.

One of the outstanding things about the

Wyoming Medical Society is that there is not and never have been any Society politics. By that we mean that no slate is ever made as to whom will be elected as officers. No wire pulling, and no hard feelings after election, but the officers are selected by the House of Delegates on their true worth and value to the Society.

The Women's Auxiliary held a delightful meeting and were shown every courtesy by the wives of the Casper physicians.

Their officers elected were:

President.....Mrs. Evald Olson, Lovell
President-elect..Mrs. R. H. Sanders, Superior
Vice President.....Mrs. F. A. Mills, Powell
Treasurer.....Mrs. C. W. Jeffrey, Rawlins
Secretary.....Mrs. R. F. Seibel, Casper

Tuesday noon they were entertained at a bridge luncheon at the Gladstone Hotel and beautiful prizes were awarded to the winners at bridge.

At the close of the convention the members scattered and with a pledge they agreed to meet at Sheridan in 1930. E. W.

PRESIDENTIAL ADDRESS*

F. A. MILLS, M.D.
POWELL, WYOMING

It is with heartfelt pleasure that we greet you on this opening day of the annual meeting of the Wyoming State Medical Society. I can say personally, and am quite certain it is true of all of you, who are pretty regular in your yearly pilgrimage, that our regular meeting together is a really pleasurable as well as profitable event, and one of the outstanding milestones along our various pathways, through this vale of tears, trials and tribulations.

While it is my privilege to come before you today with some word for your consideration, I do not come in any sense as a teller of fortunes, though I have chosen to divide this discussion into the suggestive divisions of past, present and future. Under the division of past I am pleased to remind you of a few of the wonderful lessons that we so generously received from the masters of medicine, at last year's meeting in Yellowstone Park. I know that, to those who were there, this will be like again tasting of some rare and never-to-be-forgotten viand of the banquet table, and to those who were not privileged to have been there, perhaps a faint conception of what they missed and so is lost to them forever.

The fact that the meeting was composed of the membership of the three states—Montana, Idaho and Wyoming—and set in Natures Wonderland, with the Canyon Hotel as the gem in this setting, foretold well of a most unusual event in the progress of Wyoming Medicine. A glance at the program and the names engraved thereon, completed the picture, and the forecast of our greatest meeting. So I feel it is only fitting and proper, that we pause a moment to recall even a few of the events that are now recorded in history.

One difficulty of small moment was found in the lack of smaller rooms, where the various groups could meet isolated and undisturbed, for the carrying out of the business of their separate organizations. However, a sufficient number of places, screened corners, and larger private rooms were found eventually and all such needs were met. One ripple on the otherwise placid waters, was the discovery by our secretary, Dr. Whedon, on his arrival at the Canyon Hotel, that the "chiros," who were in national convention assembled, had not only beaten us to the park, but had actually secured the identical form of identification badge that had been provided for our Tri-State meeting. This provided a most embarrassing situation, as with so many of us strangers to one another, one dared not approach a badge wearer and extend the right hand of fellowship, lest he prove to be a subluxated spine adjuster, and the physician then, under obligation, to use his left hand, with a firm punch to the jaw. As usual, we were soon rescued from this dire calamity, by the ingenuity of our secretary, who changed the color of the little card

*Delivered before the annual meeting of the Wyoming State Medical Society, June 24, 1929 at Casper.

in the badge. The ladies felt quite lost at first but soon found themselves, and really enjoyed a most pleasant meeting, I am certain. To the credit of the Wyoming organization, it may be said that the Montana ladies society was reorganized, and the Idaho ladies formed their first organization.

The various programs of the three days were presided over by one of the three states participating, Idaho leading off, followed by Montana, and Wyoming taking the last.

Each day's program was opened by the address of the president of the Society having charge that day. These were all unusually good, not too long, and while each contained some things of particular interest to that particular state, always were of general interest, and helped each to get a bit of view of his neighbors' affairs, interests and problems.

The one item from the address of the president from Idaho, that I wish to particularly call to your attention, since the same danger is present with us in Wyoming, is the yearly influx of large numbers of laborers, especially Mexicans, many of them suffering from some disease, particularly tuberculosis. So far no solution has been found for this menace to our public health, but certainly one will be found, whereby we can protect ourselves and require a health examination before admittance to the confines of our state, which, up until rcently, at least, probably occupied the enviable position among all of the states of the Union, as having the fewest cases of tubercular infection, per capita, of any of the states. In the meantime, the earnest support of the Anti-tuberculosis Society is urged, as being the best means at our command at present.

The outstanding feature of the whole meeting was, of course, the number of men of unusual prominence in the profession, who completely filled the program of all days. Also the fact that so nearly all of the men, on the printed program were on hand, proving that, not only had the program been well worked out, as to men, but that these men of big affairs, medically speaking, considered the meeting of sufficient importance, that they should make due effort to be on hand. Probably the recreation feature offered by the park contributed much to induce these men to come early and stay late. Wyoming's secretary, Dr. Whedon, was given due credit for the origination of the idea, and credited largely with its successful culmination.

I shall attempt only to briefly touch upon a few of the points made by only a few of the speakers. Dean Lewis of John Hopkins proved a very interesting instructor and gave us the latest scientific ideas on disease of bones, from those of congenital origin, on down through the list to various forms of infection and malignant disease. In discussing myocitis ossificans, he said, "It is especially liable to follow injury of the elbow joint, as dislocation of both bones, and more liable to follow when proper reduction has been performed, than when not."

Henry Schmitz of Chicago gave a fine resume of pelvic infections, said 75 per cent were of gonorrheal origin, 65 per cent result in complete recovery, 20 per cent a relative cure with no symptoms, and balance must be treated. For the endocervicitis, which is so usually the chronic state resulting, and which is the so frequent source of man's infection, as well as the cause of extension to the more distant organs of the female reproductive apparatus, he advocated the use of the actual cautery, to the endometrium of the cervix, up to and including the internal os, as the best means of prompt and complete cure. He particularly favored for this purpose, the use of the small or nasal cautery, as has been advocated by a number of writers of late.

Non-malignant Lesions of Stomach and Duodenum, by Dr. Balfour, was a paper of value to physicians as well as surgeons as he covered the subject of symptoms, medical and surgical treatment, and gave very sane advice as to when each was indicated and when best not. Owing to the disturbed blood chemistry in all eases of ulcer, he said every case should receive intravenous injections of a mixture of 1 per cent salt solution and 10 per cent glucose. He advocated the use of the actual cautery, burning out the ulcer area and closing by suturing over, as a very

sane and successful procedure. A pleasant surprise was next in store for the meeting, when the Idaho president announced that we had one guest present who was not on the program, but he was so certain we would all like to have a word from him that he had taken the liberty to ask him for a few remarks and he introduced Dr. Will Mayo. Dr. Mayo gave us a fine brotherly talk, and as he warmed up to the subject, made a decided impression on his hearers, I am sure. He particularly discussed intolerance—the intolerance of so many of the profession, and showed how it had been a hindrance to our progress and standing in the world of folks in so many ways. One point he made also, in discussing our relations to the patient, was that so often we, in trying to be so practical, fail to recognize the fact, that there is an emotional element of varying degree in every person and that in considering our patient, we should fully recognize this fact, and make due allowance for the same, and in our advice to them, not overlook this important element. As a concrete example he said there are those whose emotional nature is materially aided by their taking on an active interest and work in some line of church work, and therefore it would be the wise physician who would be able to see this and so advise. The doctor could not resist the temptation when he saw what an appreciative and attentive audience he had, to speak of one of his favorite subjects in passing us a general line of up-to-the-minute information, and said he would mention cancer, that it was still as much a mystery as had always been, that 10 per cent of deaths are now due to cancer, therefore 90 per cent have no need to fear it. He said he believed that it might be possible to build a resistance toward this dread malady, when we make the proper discovery.

The subject of Treatment of Pregnancy in Diabetic Patients, by Dr. Wilder from the Mayo Clinic, was of course a subject of great interest to every one doing obstetrics. While he brought out some particular points in general, he said these patients should receive the regular treatment, diets, etc., but with more care and closer observation as the untoward complications and disturbances are probably more likely to occur than in the non-pregnant. He said their findings did not show that children were smaller due to the restricted diet, that there was little evidence that the children would show generally impaired health or resistance, or that they were any more liable to develop diabetes, than those from the non-diabetic mother. He advised the feeding of part other milk as soon as child is born, for the child's sake, but that mother should be allowed to nurse in part, as this increased her tolerance. Tolerance test showed that tolerance tended to decrease during the first four months of pregnancy, then increased, until at the last she might need no insulin at all. He said that hypoglycemia during pregnancy was very liable to cause death of fetus, abortion, as well as produce the usual toxic dangers in the patient herself. Care must also be used in administering insulin after delivery.

Dr. Cradle of Chicago, an eye man, gave us a pleasant surprise during his discussion of the subject, "Modern Advances of Opthalmic Therapeutics," for instead of giving the general practitioner, who composed the most of this audience a deeply scientific and technical paper on the eye, as so many of these men are inclined so often to do, he talked to us as an intelligent father should to a fairly intelligent son, in language that we understood and on matters that we were interested in and could well use. He said purulent conjunctivitis is too deep an infection for most antisepts to reach, such as the silver salts, protargo, argyrol, etc.; therefore use murcurochrome 1 per cent at first. He mentioned a little stunt of greasing, before installation, of lower lid and cheek to prevent the staining of those parts. He said positively in the eye had murcurochrome proven a decided advance in infective conditions. Use it in Hordeolum, as preventative of further spread of infection, draining the abscess surgically. In corneal ulcers probably a greater advance had been made in prompt cure, and so prevention of sequela, than any other condition. Here he advocated the use of a new or different method in order to greatly increase the strength of the anti-

septic action, on the infective process burrowing into the layers of the cornea. This was accomplished by the application to the ulcer of a mixture that he called murcurochrome mud. This was a thick paste of murcurochrome and water, made up warm. After using local anesthetic on cornea, apply mud, massage gently and wash out excess with simple irrigation. This treatment was much better than any form of cautery, which always tended to cause scar tissue to form. Repeat mud daily. Another treatment that he advocated as an additional aid in these cases was the use of foreign proteids, especially the non-specific, as milk, which he was positive gave very decided additional aid, and said that in order to do so, it must give a reaction; a shock to the system. In vernal conjunctivitis he said the use of aphodeal intravenous, was a positive cure in 7 to 14 days in every case. Repeat next year. No shock from injection. In dilating pupil, atropin is best, and where difficult add adrenalin by hypo 2 to 6 minims, under subconjunctiva. Another and simpler method to instill the adrenalin is to place pleget of cotton saturated in adrenalin, in lower culdesac for few minutes. Adhesions from iritis may be broken up by these methods early, but late and where too firm—no remedy. In the treatment of glaucoma, therapy in the last five years had improved the results through the use of adrenalin compounds, which are not a cure at all, but merely a tidealong until time for operation. In his summing up he urged the use of foreign proteid injection, such as milk, as aforesaid, he using very rarely, typhoid vaccin, as a prophylactic in serious injury of the eyeball, making the injection at once and repeating. Also after operation where infection was probable. He also advised that while foreign proteid was of less value in superficial infections of the eye, it should be used in all deep infections and in most cases of more serious ulcer, iritis, etc., and even in cases where there was a plus Wassermann, results were prompt, though in the last mentioned, only temporary. The milk should not be pasteurized, but fresh milk, brought to a boil quickly was what he had found best.

Our friend, Dr. Hopkins, chief surgeon of the Chicago N. W. R. R., was on hand and in his entertaining way again told us a lot about head injuries. He, like most of the men, had lantern slides which are a great aid in explaining and getting into the listener's mind the points presented. He emphasized again the need of ascertaining the direction from which the force came in head injuries, where possible. Again told of the use of the two thermometers, one in either axilla, the one on the side which showed the higher temperature indicating the opposite side of the brain as being the injured. In general injury or congestion as wet brain, no difference in temperature. Spinal puncture to relieve intracranial pressure was not good, but intravenous saline solution much better. For the shock in these cases, he advised that urine tests should be made hourly, and on the appearance of any glycosuria, start intravenous injections of 50 per cent glucose solution, 40 cc. per hour, until as much as 1,000 cc. had been given. This was to be followed by a restudy of all x-ray plates taken early, and a second series later, as he had found in this way several fractures that had been overlooked at first. Where both pupils were dilated, this meant usually large injured area and therefore serious. Blood pressure taken every hour was often a valuable aid, as indication as to whether to operate or not. He said hemorrhages in subconjunctiva always suggest cranial hemorrhage, a black eye, coming on quickly, especially with exopthalmous, means a skull fracture, and a bleeding ear a basal fracture. He also warned us not to overlook the neck, hip, etc., in our head injuries. Never irrigate a bloody ear. The doctor said that he closed all skull wounds without drainage.

One of the outstanding pleasures of the meeting was the address of the president-elect of the A. M. A., Dr. W. S. Thayer of Baltimore. Dr. Thayer was an unusually pleasant man to meet, seemed full of pep, for a man showing so much gray hair, and took a keen interest in our meeting. His subject, The Importance of the Simpler Methods of Physical Diagnosis, was a clear message to us all, which told us in a forceful way that

the fundamental diagnostic means, through history, observation, and the physical signs of inspection, palpation, percussion, and auscultation, had never been superseded by any other means, and that every physician should realize that this was true; therefore, develop and improve his individual abilities, to the greatest possible extent, and then recognize that all other aids, as x-rays and laboratory, were merely secondary and supplemental, and while often extremely valuable in helping to clear up a doubtful case, were always secondary to the implements as aforesaid, in the hands of the doctor himself. He insisted that we should never let the x-ray man or the laboratory worker make our diagnosis, as they so often, in fact, usually try to do. The doctor recited several incidences in his own experience to bear out his line of argument.

One of the most remarkable papers accompanied by slides was that of Dr. Coffey of Portland. An impressive looking man of quite large build, and one whom we soon found knew much about the abdomen and its mechanism, and one who had done a lot of original research along this line. He began his statements with the statement that Dr. Weir Mitchel cured many of his painful abdomen cases, neurestheuics, by putting them in bed and fattening, by forced feed diet. He then proceeded to show why, and why he was still getting the same results in the same way, but finding that many or most of the cases were not neuresthenics, as that term is usually taken, but were patients that actually had lesions, or abnormal conditions that actually caused pain. He showed that the abdomen is an inflexible tube. That the interstices of the peritoneum, omentum, and other structures, contain a certain amount of fat in every normal abdomen. That when any condition, disease, diet, change of environment, anything, that causes the absorption of all or a portion of this fat, the organs of the abdominal cavity, dilate to fill the vacume. Particularly is this true of the stomach and intestines which fill with gas. All organs tend to descend and the condition of tosis is found, this of course always aided because of the erect posture which man assumes. His statement that 70 per cent of cases where appendix has been removed have not been relieved of symptoms, does not agree with the personal experience of most of us, where the great majority have been relieved, and a small minority have not. Continuing along this line he said many of the fixations for tosis were a failure. Mentioned the tosis of the cowboy as a fine example of one due to fat absorption in the abdomen. He mentioned the importance of the x-ray in the study and conclusions in these cases as well as in interpreting the results. He said that he was curing the majority of these cases without operative interference. But that it positively could not be done in the home, but must be done in a hospital and by the aid of specially trained nurses—in fact, by a nurse of special qualities, as many nurses simply could not put the stuffing diet across—and incidentally get it down the patient. Diet for the furnishing of fat, building this into the tissues of the abdomen, as fast as possible, keeping the patient in as much of a relaxed state as possible, in both mind and body, with his heels high and his head low. This was the gist of his treatment, which took to cure in most cases a few months.

As I wish to bring before you a few other matters, I shall close this discussion with the report on the papers on Thyroid. And will group the three papers on thyroid diseases into one and mention them together briefly, as this subject is one of such vital interest to us all, and was covered as I have said in three papers by men of prominence in the thyroid specialty. Dr. Buchbinder of Chicago gave a technical discussion, accompanied by movies of his operation of a case. It seemed a very difficult operation, full of danger from his way of presenting it. He was followed by Dr. Roeder of Omaha, whom many of you have heard before on this subject at Lander, and Cheyenne, and who has honored us again at Casper with a paper. He is an especially clear teacher, knows his subject, has operated his thousands, and with the aid of his illuminated charts and diagrams, gives one a most instructive lecture. He also spoke of the dangers, particularly to the

voice from nerve injury, and made one point here that hysteria, with loss of voice was to be remembered in the loss of voice cases. Dr. Tiffin of Seattle made a hurried attempt to give his paper on the subject, as the time was very short. To many his presentation of the subject, together with some of his technique was most striking.

In continuing this report of matters relating to Wyoming Medicine of the recent past and the very present present, we shall expect the various committees to furnish the detailed items. Our defense committee at the proper time and place will tell us of the suits threatened and suits pending, and should well impress us with the importance of our belonging to the State Society, and so having the assistance of this branch of our activities, and even more particularly in showing us, the need of our ever being on guard, as to comments or expressions that might effect the work done by a fellow practitioner, no matter whether really deserving of some criticism or not.

Our legislative committee, most valiant warriors, like the Spartan of old, returned from the fight borne on their shields, since they were too badly cut to pieces to carry them, will relate to you their work in the legislature. They did their best, and it is my privilege to hereby extend to them the gratitude of the Society for their efforts.

Of some of the laws passed, others have been delegated to inform us. I am pleased to report that the law against the drug Peyote, a narcotic drug, used particularly by the Indians and the Mexicans, had no difficulty in getting through. However, since new interest in this subject has been stimulated, the interesting fact has been developed, that there is still another drug, of probably even more demoralizing effects, in quite common use among these people, especially the Mexicans, we believe, which is known as marihuana. A concerted effort among several of the states should be initiated to secure the needed legislation against this drug. In this connection I shall recommend to this Society, that a legislative committee be appointed at this meeting to work out this and other needed revision of some of the laws now on the statutes of Wyoming. For instance, after reading the short article in the June issue of Colorado Medicine by Dr. Baskin, on Contraceptive Methods, and particularly noting his discussion of the antiquated laws on the statute books of Colorado, I hurriedly scanned the corresponding sections of the Wyoming code; namely, Sections 7202 and 7086, and I am surprised to find that we are in about the same situation as Colorado in this matter. For instance, we are permitted to perform an abortion in an effort to save a woman's life, but would be criminally liable to in any manner, by word, advice, method or appliance, endeavor to assist her in preventing the conception. This law was copied in toto thirty-nine years ago, from the laws of Virginia, and those laws were likely a hundred or more years old. These laws should be all gone over and brought up to our present ideas and practices. This committee must have time to go over these and any other that may be objectionable and work out the law wanted, submit to this Society at next meeting, and so be ready for our consideration and discussion. We should ever endeavor to keep our state abreast of the times.

Gentlemen, one of the most valued treasures that has yet come to me, has been the esteemed honor of being president of the Wyoming State Medical Society for the past year, and for this I most heartily thank you!

DR. C. A. ROEDER, HONORED

At the Casper meeting of the House of Delegates, Dr. C. A. Roeder of Omaha was elected an honorary member of the Wyoming Society. This is the only way that the Society can fitly express the high regard and respect that Dr. Roeder holds in the hearts of the Wyoming doctors.

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EDITORIAL NOTES AND COMMENT

THE ANNUAL MEETING AT GREELEY, SEPTEMBER 3, 4 AND 5

If there is any fact established in medicine, it is that there is great advantage in scientific meetings. So well is this established that not a single state nor specialized group within the United States fails to have such regular meetings. Consequently those who absent themselves from all or part of the meetings to be held in Greeley, September 3-5, must fail either to appreciate this scientific fact or willfully deny themselves of its advantages. To the end that the fifty-ninth session may benefit our 1,150 members as much as possible, the Journal urges a last-minute decision to attend unless plans for same are already arranged. An excellent program and ideal local arrangements are guaranteed.

THE "BLUE RIBBON" CHILD

In the 1928 session of the Congress of the United States a joint resolution was passed establishing May 1st as National Child Health Day, in order "to awaken the people of the nation to the fundamental necessity of a year-round program for the protection and development of the health of the nation's children."

The Colorado Council of State-Wide Health Agencies, consisting of The Colorado Agricultural College, Extension Division, The Colorado Child Welfare Bureau, University of Colorado School of Medicine Hospital, Colorado Psychopathic Hospital, Colorado State Board of Health, Colorado Tuberculosis Association, Extension Division of Colorado University, Colorado Dental Association are sponsoring as a year-round May Day program a "Blue Ribbon" Standard for children. The adoption of the "Blue Ribbon" standard is to place before child, parent and teacher the minimum standard of the physical ideal of childhood.

A "Blue Ribbon" child is one who measures up to the minimum requirement for physical fitness on nine points: 1, vision; 2, hearing; 3, teeth; 4, throat; 5, weight; 6, posture; 7, a reasonable degree of co-operation in control of communicable diseases (immunized against smallpox and diphtheria); 8, mental hygiene habits (adjusting at the child's intellectual and emotional level); 9, reasonable co-operation in the practice of personal health habits

The child who is awarded a "Blue Ribbon" certificate should be entitled to it because of his actual health knowledge, his use of such knowledge in eating, sleeping and playing, and in the improvement of his bodily condition in general. An examination by a physician should determine whether the child is actually in physical health and free from defects as a result of his own and his parents' efforts.

A child who measures up to this standard will be awarded a "Blue Ribbon" certificate for the year by the council. The examination form must be signed by a physician or public health nurse, and the teacher. The State Department of Health will award a banner to the county having the greatest number of "Blue Ribbon" children by Dec. 31, 1929, in proportion to population of the

county as of the 1926 estimated report of the United States Census Bureau.

The motive of the "Blue Ribbon" Standard is to encourage a periodic health examination for children.

The American Medical Association through its component state societies has been encouraging every physician to promote to the best of his ability the periodic health examination for each of his clients. Pediatrists have found it possible to interest parents in the idea of a periodic check up of infants and young children with the aim of "Keeping the Well Child Well." Life insurance companies have done much to educate adults to the truth that a periodic, annual check-up, leads to health and longevity. It is perhaps unfortunate that the reputable physician has had no adequate opportunity of advertising his genuine interest in the promoting of individual and community health. The Blue Ribbon Standard offers such an opportunity.

When the physician examines a Blue Ribbon applicant he has an opportunity to sell positive health to the parents as well as the child, and many of those contacts will become applicants for an annual health examination.

R. P. F.

THE STATE LIBRARY

The Library of the Colorado State Medical Society, now comprising nearly two thousand volumes, is housed in the Metropolitan Building, in Denver, with the Library of the Medical Society of the City and County of Denver, which contains approximately twenty-three thousand volumes. In this combination, the medical profession of the Rocky Mountain region is afforded library facilities superior to anything to be found between Chicago and the Pacific coast.

These two libraries are prepared to render to **all members** of the Colorado State Medical Society, the following important service:

1. **Loans by title:** Upon request, any book or journal will be loanded for one week.

2. **Reference service:**

(a) Upon request, literature on any stated subject will be found and forwarded.

(b) As received, current journals will be searched for articles on a stated subject and appropriate issues forwarded to those members requesting this service.

3. **Journal service:** Two hundred and twenty-eight medical journals are received regularly. Any member of the State Medical Society may select a journal or a number of journals which he would like to receive regularly and these journals will be loaned for one week.

All loans of books and journals are subject to the usual library rules and the sole costs are the transportation charges, both ways.

During the past year, fifty-six calls for service were received from members residing outside of Denver and one hundred and seventy-five items were shipped. In addition, service was rendered at the library to one hundred and five members making personal calls.

Many members of the State Society must know of this invaluable service to be had for the asking; it is apparent that, at this time, comparatively few are availing themselves of it; it is confidently believed that with a little publicity generally appreciation of the library's keen desire to be helpful will be rapidly succeeded by steadily increasing demands for service.

Incidentally, the services of the library, under appropriate conditions, might well be placed at the disposal of our colleagues of the Wyoming State Medical Society.

The librarian, Miss Goehring, has prepared an exhibit of books and journals for the annual meeting at Greeley and will be present in person to answer questions.

It is hoped that many members of the Society will seize the opportunity to learn at first hand something of their library.

J. J. W.

Lest We Forget

There is no more potent antidote to the corroding influence of mammon than the presence in a community of a body of men devoted to science, living for investigation and caring nothing for the lust of the eyes and the pride of life.—Osler.

THE SIMULATION OF VISCERAL DISEASE BY PERIPHERAL NERVE PAIN AND TENDERNESS*

JOHN C. COTTRELL, M.D.

Attention in recent years has been directed largely to the recognition of organic disease; newer measures, chiefly supplied by the laboratory, are developed to permit diagnosis of conditions hitherto evident only when advanced in pathology. Considerably less has been written on the subject of the simulation of organic disease by a variety of conditions, variously called intercostal neuralgia, radiculitis, or neuritis. Mention will be given here mainly to abdominal surgical conditions in which confusion is particularly common.

Carnett[1] of Philadelphia has contributed largely to the subject describing intercostal neuralgia as a cause of abdominal pain and tenderness. He states that "neuralgia of the nerves which supply the abdominal wall is a subject which has never received merited recognition in medical literature. It is an exceedingly common affection and failure to recognize its presence leads to erroneous diagnosis and often results in futile operations."

The pain and tenderness of peripheral nerves, whether the intercostal nerves supplying the abdominal wall, or other nerve trunks, may be of an acute or chronic nature. Conditions producing acute nerve pain are numerous. Acute toxemia, most often an infection of the upper respiratory tract, notably influenza; herpes zoster; trauma to the spine; and late syphilis are frequently etiological. In its chronic form, intercostal neuralgia is symptomatic of vertebral lesions more frequently than all other lesions combined. Scoliosis and excessive lumbar lordosis before the age of 35 and spinal arthritis after 35-40 years of age are the principal factors.

Hypertrophic osteo-arthritis of the spine as a causative factor has been generally recognized. In a series of eighty-seven cases of spondylitis, Vanderhoff[5] found forty who complained of abdominal pain. In seventeen of the forty visceral disease could be demonstrated; in twenty-three cases careful and complete studies excluded visceral disease as a cause of the patients' complaints. Chute[3] reported five cases of spinal osteo-arthritis in which the referred pains simulated lesions of the kidney, prostate or seminal vesicles. Gunther[4] gives a complete discourse on the relationship of spinal osteo-arthritis producing radiculitis simulating a wide variety of organic lesions. In hypertrophic spinal arthritis, bone spurs may encroach on the intervertebral foramina, but they are a rare rather than a common cause. An inflammatory exudate pressing on the spinal nerves or their roots in the intervertebral canal or epidural space more often causes the symptoms. In a study of this relationship in a series of eighty cases we found 55 per cent of patients over forty years of age showed x-ray evidence of osteo-arthritis; 8 per cent had parietal abdominal pain and tenderness. Radiculitis simulating visceral disease was found in 4 per cent of the cases showing osteo-arthritis, while 2 per cent had the radicular syndrome but no osteo-arthritis was visible to the x-ray.

Gunther[4] has described the clinical pictures of radiculitis produced by osteo-arthritis according to the vertebrae or roots affected. Involvement of the second and third cervical nerves causes headache, described as a dull ache, soreness or burning at the occiput on either or both sides. Painful shoulders or aching soreness and stiffness on the outer side of the neck were complained of when the fourth, fifth, sixth and seventh cervical vertebrae and roots were involved. Heart disease occupies the patient's attention, and too often the physician's, when the second to fifth thoracic vertebrae are affected. Osteo-arthritis of the sixth, seventh, eighth and ninth thoracic causes pain, burning, tingling, heaviness, pressure and stabbing in the epigastrium. He states that involvement of this area with manifestations greater on the right side produced pain or aching over the right upper quadrant with radiation along the ribs to the shoulder

*Read before Arkansas Valley Medical Society, March 4, 1929.

blades or across the abdomen. Pain in this area requires a differential diagnosis from gall-bladder disease. When the tenth to twelfth thoracic roots are affected the appendix receives considerable attention on the right, and in women, the tubes and adnexa if symptoms are greatest on the left.

The diagnosis is established by a combination of symptoms and signs. A good history may indicate that the symptom-bearing areas correspond to the distribution of definite spinal roots and peripheral nerves. The radicular syndrome is characterized by the root distribution of the symptoms. The outstanding characteristics of this syndrome are the relationship of symptoms to the movement of the spinal column and their association with Dejerine's sign, which is aggravation by sneezing, coughing or straining at stool which is considered pathognomonic of radiculitis. A considerable percentage of patients volunteer the statement that the pain extends from the abdomen to the spine or from the back to the abdomen. A few patients state that their pain and tenderness are superficial, but the great majority believe they are deep-seated.

Careful elicitation of tenderness by methods described by Carnett[1] are exceedingly valuable in distinguishing between parietal or abdominal wall tenderness and true intra-abdominal tenderness. He has devised a simple two-stage bedside test termed the A and B test. He states—"(A) In any patient complaining of abdominal pain and tenderness, the examiner follows the classical advice of gaining the confidence both of the patient and his muscles, palpating in the usual manner. Irrespective of whether the tenderness is parietal or intra-abdominal the examiner's fingers as a rule will dip fairly deep into the abdomen before tenderness is elicited. This deep position of the fingers has generally been regarded as proof that the tenderness is intra-abdominal, but in a surprisingly high percentage of cases this assumption will prove to be an error as shown by the next step, the B test. The examiner in this manipulation keeps his fingers at the most sensitive area he has discovered on deep pressure and requests the patient to make his abdominal muscles tense by contracting the diaphragm or by raising and holding the head from the pillow. As the patient tenses his muscles, the examiner relaxes his finger pressure so that his fingers rise out of the abdomen, and then with the patient's abdominal muscles tense the examiner reapplies pressure with his finger tips, exerting a little twisting motion to them if he desires. If the case under examination is one of intra-abdominal tenderness only, the B test, or test with the muscles rigid, will fail to elicit any tenderness when strenuous pressure is applied over tense muscles. If the case is one of parietal tenderness almost as much tenderness will be elicited by the B test as by the A."

Pinching a liberal fold of skin and fat of the anterior abdominal wall between the thumb and first two fingers demonstrates diffuse tenderness in these tissues. An interesting application of the test may be made in unilateral cases in which the hyperesthesia approaches the midline, by picking up a fold of skin and fat between the thumb and one finger placed on each side of the midline whereupon the patient will complain of pain on the affected side only. Another modification of the pinch test consists of pressing skin and fat against the inner side of the anterior spine of the ilium.

Tenderness may be demonstrated by palpation pressure on the nerve trunks and main branches of the nerves affected by the neuralgia. Trunk tenderness especially in the intercostal spaces is present in many nerves that do not exhibit tenderness in their terminal distribution.

Less clinical importance but some academic interest is attached to finding superficial tenderness by scratching or pricking with a pin, by stroking with a cotton wisp, and by applying heat and cold.

In intercostal neuralgia the tenderness is usually more widespread than the area of spontaneous pain. The abdominal pain may be associated with pain in other parts of the body. Even when the spontaneous pain is confined to some small part of the abdomen, tenderness is frequently found in the ter-

minal nerve distribution over the entire abdomen, over the inguinal regions, over the buttocks, and in the upper arms over the posterior avillary folds, and may extend even further afield. The tenderness varies greatly in different cases and even in the same patient at different times.

The pain and tenderness of parietal neuralgia frequently lead patients to seek treatment. The usual diagnostic error in intercostal neuralgia is to attribute parietal pain and tenderness to a lesion of an underlying viscus. The pain and tenderness in some cases is manifested mainly or entirely at the lower angle of the right scapula and at the right costal arch, thus simulating acute, subacute or chronic gall-bladder disease. A tender point may give a typically positive Murphy's palpation test for a sensitive gall-bladder. In the presence of an overlying parietal neuralgia, diagnosis of a biliary lesion often must depend upon diagnostic biliary drainage, x-ray of the biliary region by a flat plate or the Graham-Cole method. Carnett[2] states that intercostal neuralgia is the usual reason for frequent failure to alter symptoms in cholecystectomy for the non-calculous gall-bladders.

The association of parietal pain and tenderness with symptoms of real or fancied indigestion lead to frequent errors in the way of diagnosis of non-existent lesions of the gastro-intestinal tract, particularly the diagnosis of chronic appendicitis.

Parietal neuralgia may be mistaken for almost any abdominal lesion which is supposed to cause pain and tenderness. The presence of parietal neuralgia does not exclude possible co-existence of an intra-abdominal lesion. The diagnosis of intra-abdominal affections is rendered difficult in the presence of an over-lying neuralgia and resort must often be made to every possible diagnostic aid before arriving at a decision.

The treatment of the symptom-complex is dependent upon the underlying cause in a given case. An acute attack usually has a toxic cause and treatment is that appropriate for a toxic focus. The problem presented by the chronic case is more varied and difficult of solution. Chronic foci of infection should be eliminated. Scoliosis and excessive lumbar lordosis may be corrected by suitable orthopedic measures. In the presence of severe neuralgia some form of fixation of the spine by corset, brace, cast or rest in bed may be indicated. Inasmuch as the nerve pressure may be due to an inflammatory exudate superheated air and judicious massage of the back may expedite the absorption of the exudate. Surgical measures, as division of the nerve trunks with avulsion of distal branches, or alcoholic injection of the nerve trunk have been used in obstinate cases.

Four cases representative of this condition are cited:

CASE REPORTS

Case 1. Mrs. R. K., 51-year-old housewife, complained of pain in the right upper abdomen; onset seven years ago attributed to striking chest in a fall. For the past four years she has been frequently nauseated, but never vomited. Itching and tingling sensation occurs in the right side of the chest and abdomen. The distress is aggravated by jarring, sneezing or coughing. Never is jaundiced; has considerable gas and is constipated.

Past illnesses were malaria, incipient tuberculosis at 23 years of age and influenza in 1925. Married fifteen years; no pregnancies.

She has been told by two physicians that she had gall-bladder disease and operation had been recommended.

Essential points on examination were tenderness of the right upper abdomen, maximum tenderness being under the right costal margin. There was a marked limitation of movement of the spine in the thoraco-lumbar region.

X-ray reports were as follows: Lungs show chronic fibroid phthsis; gastro-intestinal tract shows no evidence of pathology. The kidneys are normal in size and position. Gall-bladder by the Graham-Cole method is apparently normal. Laboratory reports show à van den Bergh of .4 units, a normal reading; bile removed by Lyon's non-surgical drainage was normal and contained no calcium bilirubin crystals, which, if present, are considered indicative of stone. Wassermann negative; urine negative; leukocyte count 4,000.

Attention then directed to the spine disclosed that the seventh, eighth and ninth dorsal inter-vertebral spaces and intercostal nerve trunks on the right were markedly tender to pressure. Movement of the spine was limited in the thoraco-lumbar region and full movement caused pain. Hyperesthesia of the skin supplied by the seventh, eighth and ninth intercostal nerves on the right was definite. X-ray of the spine showed a moderately advanced osteo-arthritis of the ninth, tenth and eleventh thoracic vertebrae. Injection of novocain into the para-vertebral spaces between seventh and eighth, eighth and ninth, ninth and tenth vertebrae on the right resulted in a loss of the hyperesthesia corresponding to the area of tenderness previously determined on examination; and during the effect of the anesthesia all pain was relieved. A diagnosis of intercostal neuralgia due to hypertrophic osteo-arthritis of the spine was then made.

Spinal fixation with a corset, bed-rest, and seda-

tives gave temporary relief. Four months later the patient complained of pain in other regions, chiefly arms, left leg and left chest. Nerves in these areas were found tender. This later observation of generalized nerve involvement tended to confirm the original diagnosis.

Case 2. H. M., 50-year-old laborer, was referred to the hospital for operation for subacute appendicitis. He suffered a severe attack of influenza three weeks before, and right lower quadrant abdominal pain had followed. There had been no nausea nor vomiting. Pain was aggravated by jarring, sneezing and coughing. He also complained of some pain in the right chest and below the left costal margin. For many years he had suffered with stomach trouble, principally in the spring and fall, which consisted of pain in the epigastrium one to two hours after meals. At these times vomiting occurred. There had recently been an undetermined loss in weight.

Essential findings on examination were tenderness in the right lower quadrant. This was exquisite when the muscles of the abdomen were held tense. The intercostal nerves in the thoracolumbar region were tender; the ilioinguinal and iliohypogastric nerve trunks were markedly tender. Laboratory reported urine negative, white count 5,000 and Wassermann negative.

X-ray of the gastro-intestinal tract reported a probable tumor of the pylorus. X-ray of the spine revealed an extensive hypertrophic osteoarthritis of the lower thoracic and all lumbar vertebrae.

A diagnosis of post-influenzal intercostal neuralgia simulating appendicitis was made. On account of the previous history of stomach disorder, loss of weight and x-ray findings, an exploratory laporatomy was performed. The stomach was found to be normal. The appendix was about the size of a small match, showed no acute pathology and was not removed.

On discharge the patient was free of pain and previous symptoms; however, nerve tenderness could be elicited though less readily than before.

Case 3. G. S., 56-year-old conductor, complained of pain in the right lower abdominal quadrant. He had had a mild attack of influenza one month before. There were no gastric disturbances; bowels were regular. Temperature registered 97.6°. Examination showed tenderness but no rigidity in the lower right quadrant. This was decidedly more marked when the recti muscles were tense. The right lower intercostal nerve trunks supplying this area showed tenderness. The intercosto-humeral, upper intercostal and iliohypogastric nerves were definitely tender. Leukocyte count was 5,400, urine negative, Wassermann negative. X-ray of the spine showed an exostosis of the third lumbar vertebra. A diagnosis of intercostal neuralgia subsequent to influenza was made. After a few days rest in bed, the pain disappeared and the patient has been well for the past six months.

Case 5. Mrs. F. A. P., 49-year-old housewife, stated that for the past twenty years she has had sharp pains across the abdomen. Skin over the chest, back and abdomen was always sensitive to touch. Coughing and jarring aggravated the condition. The abdominal pain was chiefly in the left lower abdomen and radiated to the bladder region. Past illnesses were nervous breakdown at 31 years and severe influenza in 1918.

Examination showed general abdominal tenderness, chiefly on the left side. There was no rigidity. With the muscles made voluntarily tense, tenderness was greatly increased. The supra-orbital, intercosto-humeral and all intercostal nerve trunks were exquisitely tender. Excessive lumbar lordosis was present.

Temperature registered 98°; white count 5,400; urine negative; Wassermann negative.

X-ray of the gastro-intestinal tract showed no evidence of pathology. Cystoscopic examination revealed no pathology in the bladder, ureters, or kidneys. The spine showed no evidence of osteoarthritis.

Bed-rest, hot light over the spine, and correction of a slight anemia gave the patient temporary relief. All symptoms, however, recurred in a few weeks.

Conclusions

Peripheral nerve pain and tenderness particularly involving the intercostal nerves is a common affection. A variety of organic lesions may be simulated. The recognition of this condition is important in establishing a correct diagnosis and in instituting proper treatment.

BIBLIOGRAPHY

[1]Carnett, J. B.: Intercostal Neuralgia as a Cause of Abdominal Pain and Tenderness, Surg., Gynec. and Obst., 625-632, May, 1926.

[2]Carnett, J. B.: The Simulation of Gall-bladder Disease by Intercostal Neuralgia of the Abdominal Wall, Ann. Surg., November, 1927.

[3]Chute, A. L.: The Pain of Osteo-arthritis of the Spine, Its Bearing on Diagnosis of Urinary Diseases, Boston Med. & Surg. Journal, 151, 563-566, 1904.

[4]Gunther, L.: The Radicular Syndrome in Hypertrophic Osteo-arthritis of the Spine, California and Western Med., Vol. xxlx, No. 3, September, 1928.

[5]Vanderhoff, D.: Spondylitis and Abdominal Pain with a Discussion of Nerve Root Symptoms Simulating Visceral Disease, Jour. Am. Med. Assn., June 19, 1920.

Local Persons Contribute to Fund to Prevent Deafness

The names of two residents of Denver appear in the list of contributors to the American Otological Society's Research Fund made public here today. They are Dr. Harry L. Baum and Dr. T. E. Carmody.

A fund of $2,500,000 is being sought to finance a plan of research, world-wide in scope, into the causes and means of preventing deafness. The plan embraces research in leading universities and hospitals both here and abroad and is under the direction of the American Otological Society, the foremost group of ear specialists in the country and the oldest specialized medical society in the world.

Aequanimitas

Imperturbability means coolness and presence of mind under all circumstances, calmness amid storm, clearness of judgment in moments of grave peril, immobility, impassiveness, or, to use an old expressive word, phlegm. It is the quality which is most appreciated by the laity though often misunderstood by them; and the physician who has the misfortune to be without it, who betrays indecision and worry, and who shows that he is flustered and flurried in ordinary emergencies, loses rapidly the confidence of his patients.—Osler.

OURS IS THE POWER*

An Essay on the Human Side in Medicine

HENRY SEWALL, M.D.

A recent collection of essays from various sources, published under the title, "Whither Mankind", is a consistent effort by many highly qualified observers to trace and to prophesy, in the light of their own studies, the effect upon civilization of the discoveries in pure and applied science which have characterized the present as pre-eminently, "The Machine Age."

It may have been a wise expediency which omitted from the list of seventeen essays any consideration of medical practice, as such, aside from the field of Sanitary Science.

Such an inclusion would have presented peculiar difficulties. Medical and surgical art has enjoyed, no less than industrial mechanics, a development in technique and mechanism which in each case was generated through the virility of pure science. Parallel also with general industrialism, but under vastly more complex conditions, clinical medicine is now confronted with new sociologic problems, under the stress of economic conditions, which compel the envisagement of medical service from the viewpoint of mass production and consumption—problems which have recently been recognized under the caption, The Cost of Medical Care.

The solution of these problems demands the application of organizing and administrative genius which has nothing to do with the essence or viewpoints of medicine, though these form essential factors in the calculation.

The specific attribute of machinery is the making of vast numbers of identical instruments, where the medieval artisan could make but one by hand. Through cheapness of production and widespread distribution manufactured articles have become the textbooks of modern civilization.

Already through them, it is claimed, the individual human machine has multiplied its power 150 times. Leisure and affluence bless many who had struggled in grinding poverty before. Most important of all, the external appurtenances of comfort give freer opportunity for the development of internal human energies which are apt, in part, to seek out new and higher paths of intellectual production. Nevertheless, it is of practical moment to realize that the Mind has made the Machine, not the Machine the Mind.

The virtues of the artificial instrument depend upon its standardization. The standardized mind is a lower creation than the machine it uses.

The finest task in education is, I take it, to apprehend in the mind its most precious attribute: what Huxley called the "power of irregular spontaneity". Chromos by the carload would be outweighed in value by the smallest sketch by Rembrandt.

We speak familiarly of the vicious circle in disease; where one pathologic process provokes another and the second intensifies the first and so initiates a morbid series the fatal last member of which is far different from the first.

But the economy of Nature uses the same method for our salvation as for our destruction. When the mind jacks up its plane of standardization it creates a new environment for freer development of its powers.

Nothing better illustrates this than the history of medical science and art.

Philosophers all seem to agree that the human intellect as such has, to say the least, rather deteriorated than improved since the Golden Age of Greece; yet as regards the mastery of nature its people were but savages as compared with ourselves. In one of his essays, Osler points out that we must grant that our advantage has been due wholly to the discovery and application of a method, the method of **experiment** in investigation; and he ventures the opinion that had Aristotle and his compeers but grasped the utilitarian value of experiment we should have eluded the Dark Ages and now be vastly further advanced than we are.

I will not dwell upon the platitude that medical science and art have fairly kept

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pace with the accelerating progress of the machine age. I would maintain that it is a reproach to civilization that the discoverer of biologic truth should not automatically receive, after his kind, rewards commensurate with his service to science and humanity.

We owe incalculable debt to those members of our profession who have applied their talents for organization to the uplift of medical education and the public welfare through the classification and standardization of medical schools and hospitals. Let there be fixed a fair, if steadily rising, minimum in the standards of knowledge and working facilities to justify our professional titles, while the sky should be the limit of their upward development. Let us see to it that the student becomes familiar with the intriguing conceptions of physiology as illustrated, for example, in the acid-base equilibrium of the body; let him acquire a working knowledge of the methods of diagnosis and treatment through which at once he may be appalled at the complexity of the living instrument upon which he plays, but at the same time become reassured that its reactions are as definitely fixed by law as the government of a falling body.

Nay, more, ask him to contemplate the philosophy of his science; the marvelous allegory of human society which is depicted in the actions and reactions, the moving equilibrium of multitudinous functions carried on in harmonious co-ordination of myriads of individual cells. Let him glimpse the wonder and the beauty of it.

Let us assume that by a conceivable mutation all medical schools were properly to be included in the Class A group. That their graduates were pre-eminently versed in the subject-matter of the curriculum. That hospitals were provided with all the mechanistic facilities for diagnosis and treatment of disease and supplied with a sufficient corps of well trained nurses; then, should we have reached the Ultima Thule of medical education as fitting for practice? Far otherwise!

The fatal omission is suggested in a time-worn adage whose verbiage is familiar to the freshman student, but whose understanding is often the despair of the Nestor in practice; it is, "Treat the patient, not the disease."

The objective study of nature is so multifarious, so absorbing; the fitting of abstract pathologies to particular patients is so entrancing as to engross the finest intellects among our students.

The brighter the mind the more it is likely to revel in this objective study. But this is only the lower and standardized plane of medicine. It belongs with its companion, the table of vital statistics.

The sick person who is conscious is, **in esse** or **in posse,** an epitome of all the emotions. Apprehension, fear, hope, nostalgia, pain. His subjective state is to him all important. How familiar the formula linking mind and body! But which of us times without number has not groaned with chagrin at his own dullness of perception that the master word in practice is confidence, faith; a state of mind in the patient which has well night endless power to help our treatment; the loss of which makes us but exalted mechanics. In all our intercourse between men;—in business, in war, in politics, in diplomacy, to rightly judge what is going on in the mind of associate or opponent is acknowledged to be fundamentally important in shaping events.

Even in our social relations, is there any more crucial test of gentility than the habit of considering the feelings and view point of other people for intelligent comparison with our own?

But the higher medical education has gone far by neglect of its more human relations to turn this psychology over to the Christian Scientists. I venture to assert that what we call the scientific study of medicine, far from fitting students to deal with morbid human beings is rather distinctly antagonistic to the proper mode of approach; it is still the **disease** which interests us and not the incidental viewpoint of the patient; my positiveness in this regard is full of feeling, because founded on too abundant personal failures.

We should search in vain the labyrinth of a medical curriculum for any sign of defi-

nite consideration of this human aspect of medical practice; and perhaps it is better so. For it would be vain to teach it as a branch of knowledge. If regarded as art at all, it must be that form which conceals art; for if apparent it will destroy its purpose.

I would think, the thing that is wanted is a state of mind rather than an intellectual possession. The invalid who feels that his medical attendant is a loyal friend, consecrated to help him, the sick man, not for pay but because he likes to, and when, moreover, this visitor is equipped with knowledge fitted as well as may be to relieve the sick one's needs; what finer conditions of intercourse has life to offer? How soothing, when the time for all mechanistic aid is past, is the intelligent sympathy of the family doctor!

In brief, our teachings deal with knowledge, our experience works through wisdom.

It was only last December when the late Robert Keable published his essay on the Great Galilean. He wrote: "The Mediaevalists—as their brethren, the modern Catholics—cannot face one fact, especially about the historical Christ which is ultimately the most arresting in its significance. Modern Protestant churchmen shrink almost equally from it. It is that Christ was an ignorant man." So be it. What cares humanity for that!

It is my text: knowledge and even more knowledge must be our goal, notwithstanding the store already has far exceeded our mental capacity to grasp. Multiply it to infinite bulk and still it would be insufficient for the practice of medicine—lacking that human touch which ours is the power to supply.

Nothing could better establish the eminence of this Association than that in a single year it could lose two such members as William Le Roy Dunn and Charles Launcelot Minor.

Each fairly epitomized in his life the theme of these words, and it is likely that the finest memories of each will represent not so much the triumph of intellect as the more personal impressions of character, to the like of which all who bend under the hard discipline of medical practice may confidently claim, "Ours Is the Power."

CONSIDERATION OF SOME POINTS IN HIRSCHSPRUNG'S DISEASE*

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Congenital idiopathic dilatation of the colon (megacolon congenito, megalocolon, Hirschsprung's disease, Mya's disease) has been recognized since the seventeenth century, when Ruysch reported a case in a girl of five years of age. (Quoted by Barrington-Ward[1].)

Parry, in 1825; Billard, in 1829; Von Ammon, in 1842, each reported cases.[2]

Hirschsprung,[3] in 1888, gave the first full description of the condition (the case observed in 1886). He affirmed it a clinical entity. Congenital idiopathic dilatation of the colon may be defined as a dilatation and elongation with hypertrophy of the whole or part of the large intestine without demonstrable organic obstruction.

In the usual descriptions of the condition, the dilatation and hypertrophy, which are almost equally manifest, is stressed. Thickening of the mesocolon with lymph stasis, dilatation of the veins, elongation of the colon, which are associated conditions, are overlooked.

The lesion is usually described as affecting the sigmoid or rectosigmoid (33 per cent of cases). It is not necessarily confined to this segment.

It is logical to find the rectosigmoid the most commonly affected segment (Treves).[4] The sigmoid is the reservoir for the feces; it has the longest and freest mesentery; it is the most capable of extreme degrees of distension, both physiological and pathological. The rectosigmoid is the junction of the most movable (sigmoid) with a comparatively

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fixed (rectal) segment of the large bowel.

The rectosigmoid junction, guarded by a more or less distinct sphincter (O'Beirne's), is one of the four more complex segments of the alimentary tube, the others being the oesophageal-cardiac transition, the pyloris, the ilio-cecum. Each of these areas has a somewhat similar neuromuscular mechanism. Each may be effected, resulting in lesions which, if not identical, are at least comparable, e. g.; dilatation of the oesophagus from tonic contraction at the cardia; congenital hyptertrophic pyloric stenosis, with dilatation of the stomach; cecum mobile, with distension and stasis. It is significant that these areas, due in part to developmental, anatomical and physiological complexities are the most frequent sites of pathological processes.

Idiopathic dilatation of the colon may be fully developed at birth, or even in the foetus. Most of the cases occur in the first decade of life. Therefore, some disturbance in the foetus must be the primary or the essential factor. This factor is not mechanical, for there is no demonstrable lesion within the lumen of the intestine or outside the intestinal wall causing obstruction; it must be in the muscular wall. In reports of autopsies by different pathologists extending over nearly fifty years no external or internal obstructive factors of the colon, rectum or anus, were demonstrable. Therefore, it must be due to some condition within the musculature.

Authorities are not agreed as to the innervation of the large bowel. It is conceivable that disturbance of innervation is quite possible in the migration and rotation of the colon from its early foetal position to the position at birth.[5] It is less probable that this will occur in the more fixed anorectal canal. The anorectal canal is rarely involved, even to a slight degree in Hirschsprung's disease.

Keith[6] described a nodal structure in the nature of a neuro-muscular tissue called Auerbach's tissue as the medium through which the nervous system exercises control over peristalsis. Localized accumulations of Auerbach's tissue is most marked at the pylorus, ileo-cecum, in the upper cecum and from the midtransverse to the pelvic colon. He affirms intestinal stasis is due to a hypertonicity and not an atony of these areas. With hypertonicity one would reasonably expect hypertrophy of the wall. Hypertonicity and hypertrophy are associated with sympathetic enervation. A disturbance or imbalance of the sympathetic nerves is an important causative factor in congenital idiopathic dilatation of the colon. Fraser[7] states: "Congenital hypertrophies are due to an uncontrolled contractive function consequent to a delay in the acquisition of the power of inhibition." If this is true, then congenital hypertrophy would develop and be a permanent condition in total absence of inhibitory nerve impulses. A delay in acquisition of inhibitory function might explain the modified or late cases of Hirschsprung's disease.

The nerve supply of the rectosigmoid is derived from three systems; the sacrospinal, the sympathetic and the parasympathetic. To each has been ascribed different functions.

The sacrospinal from the first, second and third sacral nerves are motor, or propulsive. Their stimulation causes active contraction of longitudinal fibres and inhibit contraction or permit relaxation of the circular fibres in the lower sigmoid and upper rectum, with concomitant relaxation of the anal sphincter.

Sympathetic fibres are derived from the first, second, third and fourth lumbar and from the abdominal, inferior mesenteric, hypogastric and pelvic plexuses. They have terminals independent of the spinal nerves. Stimulation of the sympathetic inhibits the spinal nerve longitudinal contraction impulses and excites active contraction of the circular muscles, with tonic contraction of the sphincter ani. The sympathetic, if overacting or unopposed, causes hypertrophy and indirectly, through stasis, fermentation, etc., favors complete relaxation and dilatation of the intestinal wall.

Gaskell[8] states: "Parasympathetic controls contraction, especially if excessive, maintains a state of plastic muscle tone without permitting increase in intra-colonic pressure, and keeps the anal sphincter con-

tracted." (Analagous to intra-vesicular pressure of the urinary bladder.)

Starling[9] suggests: "The relaxed condition of the intestine and stomach following many abdominal operations is due to reflex stimulation and overaction of the splanchnic or sympathetic nerves, which nullifies the motor or contractive and propulsive impulses of the spinal nerves." This offers a plausible physiologic explanation for the favorable influence of spinal anesthesia (2nd and 3rd lumbar) in physiologic and paralytic ileus. Wagner,[10] Grieg[11], and others have used spinal anesthesia as an effective measure for ileus.

Royl and Hunter[12] state: "The sympathetic controls postural muscle tone, maintains a state of tonic contraction, which, if uncontrolled, would result in fixed contraction." This fact gave Royl a basis for his ramisectomy for spastic paralysis of the extremities. Incidentally, he noted an invariably beneficial influence on the almost invariable accompanying obstipation.

Ishikawa experimentally produced identical clinical and pathological characteristics of megacolon by section of the sacral autonomic nerves. This section completely interrupts propulsive impulses of the sacral nerves and their inhibitory influences on the circular contractive impulses of the sacral nerves and their inhibitory influences on the circular contractive impulses of the sympathetic nerves. This is the first reported instance of experimentally produced megacolon, and is an irrefutable proof of the neurologic origin of congenital idiopathic dilatation of the colon. Section of the sympathetic filaments did not produce this condition.

Brüning is of the opinion: "There is a combination of disturbances either in the cord, the ganglia or nerve trunks, interrupting the sacral nerves, which diminishes effective muscular contraction (propulsive), plus a diminution of the sympathetic, which leads to hypertrophy of the musculature, especially the circular muscles in segment affected."

There are numerous theories for the development of Hirschsprung's disease:

Mechanical

Kinking of the overloaded sigmoid.

Valve formation due, to sinking and distension of overloaded sigmoid.

Torsion of sigmoid.

Redundant sigmoid.

Too long or too loose mesosigmoid.

There is normally a disproportion of 3.5 to 1 in length of the pelvic to the entire colon in the early months of life. An anatomical fact, which has led to erroneous etiological interpretation.

Hypertrophy of sphincter of O'Beirne.

Hypertrophy of rectal valves.

Spastic anal sphincter.

Mechanical conditions can well be secondary, either in sequence or importance, to a primary non-mechanical factor. The obverse is untenable. Pure mechanical obstructions, which are frequent in the sigmoid, produce dilatation and compensatory hypertrophy. This pathological picture is not even similar. To these acquired or late types of dilatation is given the name pseudo-megacolon. For reasons before stated, it is possible, if not probable, that in some late cases of pseudo-megacolon these mechanical obstructive lesions may be engrafted on a low-grade primary or idiopathic dilatation, thereby cause great confusion in the etiology as well as in the classification.

Inflammatory

Chronic colitis, leading through inflammatory changes, fermentation with bacterial or chemical toxins, to altered physiology and anatomy.

These, too, are more logically secondary than primary factors.

In a case of Hirschsprung's disease, Cameron[13] found in the area of the sphincter of O'Beirne the Auerbach neuro-muscular nodal tissue replaced by inflammatory cells. He interprets this as a residue of congenital inflammatory lesions of the rectosigmoid. Degeneration of Auerbach's tissue in the region of the rectosigmoid sphincter was the essential causative factor in this case.

Congenital

Anomalous development of the colon wall with dilatation and hypertrophy.

This is a possibility.

Neuropathic

Paralysis of a segment of gut.

Spasm of the sphincters.

Early foetal imbalance of the nervous mechanism; motor, sympathetic and parasympathetic nerves, due to developmental defects or consequent to migration and rotation of the colon. The lesion may be in the cord, nerve-root, trunk, fibers, ganglia or Auerbach's tissue.

Age

May occur from seventh month of foetal life to eighty years of age; most frequent in the first decade. (Barrington-Ward)[1], W. E. Hughes, in London Hospital for Sick Children, found it present in proportion 1:10000 autopsies.

Sex

Three times more common in males. Pseudotype, this ratio may be equal or reversed.

Heredity

Other developmental anomalies are not uncommon. Reports cite two or more cases in a single family in one or more successive generations.

Symptoms

Fluctuate in severity. Exacerbations are directly proportionate to the degree of compensation or hypertrophy over dilatation and obstruction.

The relation of compensation to obstruction not only determines the character and degree of symptoms but also the course and fate of the case. With failure of compensation, the symptoms become aggravated and death ensues.

The primary symptoms are mechanical in nature; the secondary, which are dominant, are toxic.

The condition may exist from birth and symptoms may not occur until some time later; days, months or years; depending upon the degree of compensation. Seventy per cent develop soon after birth; 20 per cent within first few weeks; 10 per cent after years. They may be acute or gradual in onset. As in congenital pyloric stenosis, they are associated with stasis, fermentation and inflammation of the mucous membrane.

Constipation dating from birth is intractable; days or weeks lapse between movements, requiring purgatives in increasing doses and copious enemas. With fermentation, distension and tympany and characteristic abdominal enlargement supervenes, which may become huge. False diarrhoea, with fluid, pasty or putty-like, very offensive stools, which may contain variable amount of blood. Stools are rarely formed, never hard or inspissated. (A type rare in mechanical obstruction.) Toxemia, foul breath, dull, listless, apathetic; staining of the sallow, fatless skin, emaciation. Appetite is usually good, digestion fair, yet there is no gain; may be gradual loss of weight. Blood-pressure low, extremities cold and clammy, may be oedematous.

Physical Signs

Sallow, fatless, stained skin. Abdomen barrel-shaped; very long in comparison with short, widely-flared chest. Intercostal angle very obtuse, largest circumference in the upper half, and, not as one would expect, at or below the plane of the iliac crests. Abdominal wall thin, shiny, tense; veins are dilated; persistalsis visible, may be heaving or tumultuous, borborygmi audible. Tympany constant, but of variable degree; may palpate doughy mass, or distinct masses of feces. Liver dulness displaced; upward intra-abdominal pressure displaces diaphragm; may compromise cardiac and respiratory function. Ascites absent. May have intermittent hydronephrosis, albuminuria from pressure. Pain, except in acute obstruction, is absent. Rectal examination may disclose spasm of anal sphincter and a rather thick anal wall, though canal is patent; one may reach the hypertrophied spincter of O'Beirne. Proctoscopic examination negative for obstruction. X-ray with Barium enema typical and conclusive, especially in cases during the first decade of life.

Prognosis

Uncertain (85 per cent mortality). Existence precarious, owing to malnutrition, digestive disturbances, which lower resistance. Death due to intercurrent infections, especially respiratory; peritonitis by infection through permeable colon; or perforation of

ulcerated colitis, which may occur with or without distension. The younger, the worse the prognosis.

Differential Diagnosis

Acute intestinal obstruction; tubercular peritonitis; ovarian cyst; intra-abdominal or uterine tumors; rickets.

Treatment

Medical unsatisfactory, never curative, though a fair degree of compensation may be secured and maintained if begun early and continued without neglect. The medical treatment at best is only preparatory for surgical intervention. Mortality with medical treatment alone 52 to 74 per cent. Mortality in adequate surgical intervention 26 to 48 per cent.

Surgical Procedures

Treves performed the first radical operation; a complete excision of the affected colon, October 29, 1897, with recovery. Many types of operations have been proposed, but excision of the affected segment in one, two or three stages offers the best prospect for cure. The single stage excision by method of Kerr is the method of choice; next, the multiple stage resection, Mikulicz type, or Rankin's[14] modification. Side tracking operations are incomplete.

Wagner,[10] Grieg,[11] and others observed the prompt and marked effect of intraspinal anesthesia on constipation in their general surgical cases. They recommend spinal anesthesia (2nd and 3rd lumbar) for ileus. This suggestion should be a valuable temporary procedure in Hirschsprung's disease.

Royl and Wade,[15] noting the permanent correction of constipation in their cases upon whom they performed sympathetic ramisection for spastic paralysis of the lower extremity, have since performed ramisectomy with good results in two cases of megacolon, and recommend the procedure.

Sympathetic ganglionectomy, of Judd and Adson,[16] has produced good results, but the procedure is too recent to estimate the permanency. They have two cases greatly improved for nearly a year. Even though ganglionectomy does not effect a permanent cure, and though it be a difficult operative procedure, it is less formidable under some circumstances than a resection, which can be done later when the general condition has improved.

With the efforts directed toward the neuropathic theory, it seems the confused etiology will be clarified and the method of treatment for Hirschsprung's disease will be standardized.

REFERENCES

[1]Barrington-Ward: British Journal Surgery, Vol. 1, p. 345.

[2]Finney, J. M. T. Surgery, Gynecology & Obstetrics, June, 1908, Vol. VI, p. 624.

[3]Hirschsprung: Jahr f. Kinder, 1888, Vol. XXVII, p. 1.

[4]Treves: Lancet, Jan. 29, 1898, Vol. 1, p. 276.

[5]Bartle: American Journal Medical Sciences, January, 1926, No. 646, p. 67.

[6]Keith: British Journal Surgery, 1914, Vol. 2, p. 576.

[7]Fraser: British Medical Journal, Feb. 27, 1926, p. 359.

[8]Gaskell and Sherrington: Involuntary Nervous System, 1916, p. 178.

[9]Starling: Text Book Physiology, IV Edition.

[10]Wagner: Archives für Gynecologie, 1922, Vol. CXVII, p. 336.

[11]Grieg: Edinburgh Medical Journal, 1927, Vol. XXXIV, p. 470.

[12]Royl and Hunter: Medical Journal Australia, 1927, Vol. I, p. 137.

[13]Cameron: Archives of Diseases of Childhood, August, 1928, Vol. III, p. 210.

[14]Rankin: Surgery, Gynecology & Obstetrics, July, 1928, pp. 78-88.

[15]Wade: Medical Journal of Australia, Jan. 29, 1927, p. 137.

[16]Judd-Adson: Annals of Surgery, September, 1928, p. 479.

HELIOTHERAPY IN PEDIATRICS

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Does it not seem surprising that such a powerful therapeutic agent as light should have received but scant attention by modern therapeutists until very recent years? Since the discoveries of Koch, Pasteur and Lister, we have apparently been so engrossed in the mysteries and revelations of the hitherto unseen world about us as portrayed through the microscope that we have overlooked the potentialities of that vital ally which has made all these studies possible—light. Only recently have medical students been in-

structed concerning the value of heliotherapy in tuberculosis or the etiological relationship between light and rickets.

Admitting that "there is nothing new under the sun," we must, of course, admit that knowledge concerning the therapeutic rays received "under the sun" is not at all new. Rollier[1] has pointed out that sun treatment dates back to several centuries before the Christian era: "Herodotus (431 B. C.) says: 'I saw there something strange to which the people had drawn my attention. Namely, amongst the skeletons that were lying in separate heaps, I found the skulls of the Persians so tender that even with a small stone I could break holes in them; whereas, the skulls of the Egyptians were so hard that it was almost impossible to smash them with a large stone. As the cause of this they state—and which I readily believe myself—that the Egyptians are in the habit of cutting their hair short from their youth, and that consequently their skulls become hardened in the sun; on the other hand, the Persians have tender skulls because they keep the sun off their heads from childhood, inasmuch as they wear their tiara hats. Thus, what I saw is explained.'

"Oribasius, a Greek physician in Rome, explains in more or less detail the technique of sun treatment mentioned by Herodotus: 'Exposure to the sun is especially indispensable to people requiring restoration and increase of musculature; although one should guard against such rays as have passed through clouds, and one should avoid also in wind-protected parts such rays as may there collect. Furthermore, one should take care that in winter, spring and autumn the sun should have a direct access to the sick person, in summer, and in the case of feeble individuals, this method is to be avoided, the head is to be covered during the cure.' (Rollier, page 2.)

Antyllus, Avicenna and Celsus all testified to the benefits of sun exposures. The ancient Egyptians worshipped Ra, God of the Sun, as the dispenser of vital force and health. (Rollier, pages 2 and 3.)

The Greeks employed sun treatment quite generally and named it "heliosis," and later the Romans adopted the same ideas, incorporating solaria into their architecture. After about 1000 A. D., little mention is made of sun treatment until the latter part of the 18th century when Rousseau and his "back to nature" school rediscovered the healing powers of the sun. In 1774, Faure advised sun exposures for leg ulcers. Two years later, Le Peyre and Le Comte augmented this treatment with the use of lenses. In 1815, Loevel advocated insolation for a great variety of disorders. In 1852, Turck pointed out the value of both sun and air baths and gave specific directions for their use. The first clinic devoted to heliotherapy for tuberculosis was begun by Rollier in 1903 in the Swiss Alps. Rollier's work has stimulated a considerable amount of interest and research in the field of heliotherapy. (Rollier, pages 3 and 4.)

Ten years ago, a new impetus was given to the appreciation of light treatment when Huldschinsky[2] announced that ultra violet light was a specific cure for rickets. Hitherto, rickets was a mysterious disease whose etiology included all of the causes which the fertile imagination of pediatrics could suggest. For instance, the best text book authority of fifteen years ago was Osler and McCrae's "Modern Medicine." The chapter on rickets was written by that distinguished English pediatrician, George Still,[3] who mentions over-crowding, defective hygiene, parental influence, syphilis, but concludes that "rickets is, in fact, a food disorder." He also states that "season plays little if any part."

In the brief space of ten years, following the clue given by Huldschinsky, we have learned much about rickets. We know that it is a deficiency disease due to lack of vitamin D, just as scurvy and beriberri are deficiency diseases. We know that sunshine either can cure or prevent rickets through the action of its short rays; that rickets has a distinct seasonal incidence because of the paucity of the ultra violet radiation in winter sunshine. We used to empirically use codliver oil for rickets. We now use it on a scientific basis, but call it bottled sunshine. The "D" vitamin has been differenti-

ated from the fat soluble "A" vitamin as our alphabet of vitamines has rapidly grown. Finally irradiated ergosterol has been isolated as the really potent antirachitic factor so that our dosage has changed from teaspoons of codliver oil to a few drops of ergosterol. Blood phosphorus estimations may determine the diagnosis as well as the cure. Recently, Tisdall and Brown[4] have shown that sky shine or indirect light contains about 50 per cent as many ultra violet rays as direct sunlight, thereby explaining some of the benefits of air baths and out-of-door naps in the shade.

When one considers the various factors, altitude, humidity, dust, smoke, total available sunshine and temperature, one wonders why Colorado physicians have not capitalized to a greater extent upon our greatest and cheapest asset—Colorado sunshine. At an altitude of one mile, about 43 per cent more of the ultra violet rays penetrate to the earth's surface than at sea level. Relative humidity is about 25 per cent less in Colorado than in eastern states and this is probably nearly as great a factor as altitude. The smoke evil is of minor consequence even in Denver. Experiments in New York in 1927 showed that loss of daylight due to smoke amounted to 42 per cent at 8 a. m. and 18 per cent at noon in January on bright sunny days. Total available winter sunshine in Colorado is about 18 to 21 per cent greater than in the eastern states and the noon day temperatures are nearly always high enough to permit sun exposures. It is perhaps not sufficiently appreciated that at this altitude the difference between sun and shade temperatures is very great. This difference frequently amounts to as much as 40° F. in winter months. Thus, a weather bureau temperature report of 45° F. may mean a sun temperature of 85° F. The minimum sun temperature at which sun baths can be given to children is probably about 84° to 90°. Children who are tanned and older children in good health will be comfortable at temperatures which seem severe to an adult.

The technique of insolation has been described by various authors. The French school and some American physicians prefer the fractional exposure technique, beginning with the feet and gradually ascending daily. Many American physicians use the simpler method of exposing the whole body for very short intervals, increasing the time of exposure more slowly than with the fractional method. In private practice this simple method has proven satisfactory. Usually we begin with a three or four minute exposure "front and back" and increase by one minute daily up to twenty minutes "front and back." The choice of technique probably depends in part at least upon both the individual to be treated and the diseae from which he suffers. Certainly, one would not advise the same dosage of insolation for a child suffering with tuberculosis as for a child having rickets. The very potency of our solar rays in Colorado should make us at once enthusiastic about heliotherapy and also very cautious.

My own enthusiasm about Colorado sunshine dates back to 1919 when I first came to Denver to practice pediatrics. I was amazed to find in Children's Hospital no orthopedic cases due to rachitic deformity; whereas, in a similar institution in Ohio a large percentage of admissions fell in this category. A study of hospital records showed that both rickets and spasmophilia were quite rare and this prompted a rickets survey in our welfare stations to determine the actual incidence of rickets during March, 1924, and March, 1925. Hess[5] and others have shown that March shows the peak of the highest incidence of rickets and that practically 100 per cent of eastern babies have active rickets at this time unless protected by codliver oil or light therapy. Dr. Berryman Green and I[5, 6] found that only about 25 per cent of 503 babies examined showed clinical rickets. This percentage is of course higher than that of the whole community because it included numerous Mexican and colored babies. The actual maximum incidence of rickets in Denver is doubtless less than 25 per cent and, what is more significant, practically all of these cases are very mild, bony deformities seldom result, and spasmophilia is almost never seen.

We were, of course, greatly impressed by these findings. If such remarkable involuntary benefits were derived from our sun's rays, what might we expect from voluntary, intelligent, co-operation with the sun? Since 1925, we have therefore advised sun baths for most of our well children under the school age and for certain children suffering from secondary anemia, bronchitis, asthma, asthmatic bronchitis, sinusitis, and juvenile tuberculosis.

The relationship between head infections (particularly sinusitis) and chronic bronchitis has been the subject of considerable discussion in the past three years. Doubtless a considerable number of unfortunate individuals come to Colorado each year with a diagnosis of tuberculosis only to find temporary cheer in the pronouncement of some specialist that no tuberculosis can be found. Later the patient is advised that he has an even more relentless enemy—bronchiectasis. A study of the case history is apt to reveal that the patient had repeated winter colds, nasal discharge, cough, bronchitis, dating back to childhood, possibly a sequel to influenza, whooping cough or measles.

These pathetic cases cannot be cured, but they can be prevented, and it falls to the physician who treats children to assume the responsibility for the prevention of chronic bronchitis and bronchiectasis. Heliotherapy can play a very important role in this program. We have observed that the child who is kept tanned seldom develops a severe, acute bronchitis or pneumonia. The summer tanned child usually keeps his color until about January, after which time he shows increasing susceptibility to chest infections. If insolation cannot be given during the winter months, artificial light treatments are probably indicated for children with a history of recurrent bronchitis and sinusitis. Fortunately, heliotherapy can be used more or less regularly all winter in Colorado, although the past winter afforded a minimum of opportunity. The average maximum or noon-day temperature in Denver in the month of February is 45° shade or about 80 to 85° sun temperature. Unfortunately, the child who suffers from bronchitis has almost invariably been coddled, dressed too warm, and kept in an overheated house and his mother will not take kindly to the suggestion of sunbaths during the winter months. Some parents will provide the special glass windows through which ultraviolet light is transmitted, but the only glass which has been found quite satisfactory for this purpose is very expensive. However, for the timid mother and the coddled child, an excellent substitute for heliotherapy is at hand —the therapeutic lamp. During the past two years, relatively inexpensive carbon lamps have been put upon the market and found favor with both the profession and laity. No doubt, many untutored laymen have suffered burns and other ill effects from the careless use of therapeutic lights, but there is, of course, less potential danger in the use of the carbon lamps than the more powerful quartz lamps.

I do not believe that the therapeutic lamp quite equals the value of properly directed heliotherapy, but frequently the two methods can be combined to excellent advantage. Once a child has been tanned he resents warm clothes, superheated houses and is very comfortable and safe in a sunbath during the winter months, providing the sun temperature is 85° or above and there is a reasonable protection against the wind.

The following case histories illustrate results to be anticipated with insolation:

CASE REPORTS

Case 1. Herbert H. had three very severe attacks of broncho-pneumonia before he was 4½ years old. During the next three years, he had numerous throat infections and spent many of his winter days in bed. At the age of 7 years, he was advised to take sunbaths which produced an excellent tan. During the following winter he missed no school and was free from cough for the first winter in his life.

Case 2. Glen M. was first seen at the age of 2 weeks when he was having some feeding difficulty and pylorospasm which was relieved by atropin. At the age of 3½ months he had a mild eczema and soon after this acquired a cold followed by a severe asthmatic bronchitis with a maximum temperature of 102°. Following recovery from this illness, sunbaths were prescribed. This was on April 1, 1927. On May 2, when next seen, he was already tanned and was receiving sun exposure up to nineteen minutes, and had gained two pounds in the month. He has been kept tanned ever since and now at the age of 2½ years has never had another attack of asthmatic bronchitis.

Case 3. Elizabeth H., age 6 years, had an allergic family history. She had eczema soon after birth. Asthma began at four months of age and

has recurred periodically ever since then. Most attacks are initiated by head colds, although she wheezes when certain foods are ingested. She has had broncho pneumonia on two occasions, once at 4 years and once last winter at 6 years. She received sun baths in the summer, but her severe illness has always occurred in midwinter after the tan has disappeared. Following the last attack in December, 1928, carbon light treatments were instituted at home. Her mother states that she has been free from wheezing and cough since light treatment was begun.

Case 4. Ruth W., age 6 years, had a severe chronic cough which was worse at night. The cough began in December, 1928. March 5, 1929, an x-ray of the chest showed a bronchial infection like that usually seen secondary to a sinus involvement. X-ray of the sinuses showed cloudiness of both the antri and ethmoids. A series of respiratory vaccines were given and quartz lamp therapy instituted at home, followed later by sun baths. The mother was convinced that the light treatment was of great value. The child gained two pounds in one month and the cough disappeared.

Case 5. John B., age 4 years, lives in the mountains, at an altitude of 7,500 feet. Sun baths were begun at the age of 3 months and continued throughout the winter as well as summer months. This boy weighed twenty-two pounds at 1 year and has never had any illness of consequence. His mother convinced herself that winter sun baths taken out of doors are quite safe even for young babies.

Conclusions

1. Heliotherapy is of value both as a prophylactic and therapeutic agent.

2. Lower respiratory infections are seldom seen in children who are tanned.

3. An allergic family history, recurrent or asthmatic bronchitis and their ally, sinusitis, are definite indications for intensive year-round insolation.

4. Quartz or carbon lights and window glass which transmits the short rays are valuable therapeutic aids, especially during the winter months.

5. Colorado infants show the lowest incidence of rickets of any locality in the United States. This is attributed to climatic conditions.

6. Colorado offers ideal conditions for insolation because of its altitude, low humidity, high percentage of total winter sunshine and moderate noonday sun temperature.

REFERENCES

[1]Rollier, A.: Heliotherapy. Pages 1-12. Oxford University Press. Humphrey Milford. Revised 1927.

[2]Huldschinsky, K.: Deutsche med. Wochenschr. 45. Page 712. 1919.

[3]Osler and McCrae's: Modern Medicine. Lea and Febiger, 1914. Second Edition. Pages 775-777.

[4]Tisdall, Frederick F., and Brown, Alan: Antirachitic Value of Sun's Rays Through Various Special Window Glasses, Am. J. Dis. Child. 34: Page 742, footnotes 15 and 25. November, 1927.

[5]R. P. Forbes, M.D., Berryman Green, M.D., and F. B. Stephenson, M.D.: Rickets in Colorado. Archives of Pediatrics, February, 1926. Pages 131 to 137.

[6]Forbes, R. P., and Green, Berryman. Incidence of Rickets in Colorado. Colorado Med., 1925, Vol. XXII, pp. 69-74.

Teaching of Medicine

Ralph H. Major, Kansas City, Kan. (Journal A. M. A., April 27, 1929), in a paper read before the Annual Congress on Medical Education, Medical Licensure and Hospitals, Feb. 18, 1929, says that a physician should be not only a doctor but an educated man, and that the standing of the profession will suffer if we turn out a lot of doctors who have galloped through the college and medical course. The degree of M.D. should indicate a certain educational and intellectual status. It means that the possessor of this degree has slowly and often painfully trudged up the difficult and winding path of knowledge until he has reached a certain summit—not that he has taken the funicular and arrived there in half an hour. Major says that he tries to teach the student the technic of taking a history, making a physical examination, carrying out the simpler laboratory tests and then, after these details have been mastered, of proceeding to the diagnosis and treatment. The physician should first know the symptoms manifested by a patient even if the diagnosis is not apparent, for once he is sure of his observations he can, by reference to his books, usually make a correct diagnosis even when the disease is one of which he has not even heard. Medicine is not learned by diligent cramming over the midnight oil but by what one might term the "episodic method"—teaching of medicine as a series of episodes, at first perhaps unrelated, but later assuming the appearance of a connected story, or a well rounded experience as the episodes multiply. There is no doubt that medical students, like many physicians, attach undue importance to the laboratory. While we stress clinical instruction in medicine, if necessary, to the partial curtailment of didactic courses, we believe the latter have a limited but definite place in the medical curriculum. The question of the proper textbooks in medicine is a constantly recurring one, and to both student and teacher a very complex and often perplexing problem. Medical books are to be used as reference works and not as repositories of medical dogma which must be memorized and defended like the catechism. An effort is made to show that the clinical picture of a certain patient is the thing to fasten first in one's mind, and then one's knowledge may be extended by reading the composite picture of this disease presented in the textbook and noting wherein the condition of this particular patient resembles the usual picture and wherein it differs. Students should be encouraged to read good medical biographies. This historical method has a great teaching value. One lesson to impress on the student is that the patient consults him because of pain or discomfort, and that if a cardiac patient is seen in the late afternoon it is more important at that time to give the patient a comfortable night's sleep than to learn whether he has a mitral stenosis or an aortic insufficiency.

The Man in Alcibiades II

Full many a thing he knew;
But knew them all badly.

THE QUESTION OF ABDOMINAL DRAINAGE*

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A great deal has been written on this subject and there still seems to be a lack of uniformity in practice of fairly well established principles. Recently, while attending a number of surgical clinics, I was surprised to see equally competent surgeons employing opposite methods. Some say, "When in doubt do not drain," others reverse the dictum; quite strange to say, mortality seems to be about the same.

I think that undoubtedly there is a growing tendency towards less drainage. Without question, there is no indication in the great majority of cases, while in others it is most clearly indicated.

Lahey has proven that for a drain to be effective, it must be placed within two inches of the origin of infection. It is obvious, therefore, that the use of drainage in the abdomen is limited. I mention, only to condemn, the old custom of placing drains at dependent points for pathological lesions higher up. I have seen operators make a stab wound in the side to drain an appendiceal abscess. This is a useless and harmful procedure, as infection is carried to a non-infected area. The experience of war surgeons proved that mortality was lower and complications fewer when they ceased to drain.

"The development of Thoracic Surgery during the war was the result chiefly of two methods of treatment, of which, no drainage was one. Quite early in the war it was found that open wounds in which a free communication was established with the plural cavity were accompanied by great respiratory distress until the hole in the chest wall was closed, either by gauze packing or by suture. When this was done the patient's general condition was improved greatly. A drainage tube accomplishes three things:

1. It establishes very early walling-off adhesions.

2. A sinus down to a very small area.

3. Relief of abdominal pressure for a very short time.

If in the operator's judgment one or all these things are indicated he should drain.

Where we have a definite area that we wish to drain, the early formation of adhesions, walling-off, render the area to be drained extra-peritoneal and prevent spread of infection and peritonitis.

However, certain disadvantages should be kept in mind, possibility of a fecal fistula, immediate or remote difficulty from adhesions, prolonged convalescence, a weakening of the abdominal wall which may be conducive to hernia, and secondary infection from the outside.

When drainage is definitely indicated much consideration should be given to the methods employed. Having been thoroughly schooled that drainage was essential, I followed this for several years in my work; using various types of tubes all of which have been discarded for the cigarette drain which is less mutilating and more efficient. I have used the Gibson-Mikulicz Tampon with pleasing results, but my experience with this type of drainage has been too limited to venture an opinion; however, their statistics are sufficiently interesting to warrant much thought.

Wilensky and Berg claim that by bacteriological examination the question of abdominal drainage can be determined. In the first place this would be too impractical in many localities, and besides the patient's resistance and the virulence of the organisms are factors that would be hard to estimate.

Since it has been so definitely established that the peritoneum, in addition to being an absorbing membrane, has marked resistance and by this power many infections are overcome. This strengthens the theory that drainage is needed much less frequently than was formerly thought.

In cholecystectomy, where you are reasonably sure of the technique, I see no reason for using drainage. In ruptured stomach and duodenal ulcers, several things should

*Read before The Arkansas Valley Medical Association, Pueblo, Colo., March 2, 1929

be taken into consideration. If the rupture occurs while the stomach is empty, drainage is not necessary.

The high acidity of the stomach contents lessens bacterial activity and primary closure will prove satisfactory. However, if rupture occurs when stomach is full, I think perhaps occasionally the best judgment might be in favor of drainage.

In Pelvic Surgery primary closure will lessen mortality and morbidity. These cases should never be operated on during the acute stage. The pathology should all be removed, the area gently wiped clean, suction used when possible and never flushed out with antiseptic solutions. If the above suggestions are followed all of these cases can be closed without drainage. For a period of ten years, I have been using primary closure in pelvic surgery and have not regretted the procedure.

I have selected for the purpose of careful study something over five hundred cases of acute appendicitis operated during three different periods of my surgical work. In the first series I was draining everything that was at all suspicious and even using counter-drainage. During this period I used various types of tubes and in checking over these histories I had several fecal fistulas that I am confident were due entirely to the pressure of tubes. The mortality and morbidity of this series were greater than in the other two periods. I am confident that in a few cases drainage was responsible for secondary infections.

In the second series where I could remove the pathology I was closing the abdomen by primary suture. At first, I was surprised and pleased with the remarkably smooth convalescence of these patients, but with growing experience I am convinced that this extreme method will occasionally lose a patient that might be saved with proper drainage. However, my mortality and morbidity were both less than with the first series.

In the last series I have tried to exercise judgment, taking into consideration some definite principles; in the first place I never operate a patient that comes into the hospital with a ruptured appendix, a distended abdomen, a dry skin, a dry tongue, extensive peritonitis and definitely getting worse. I know from bitter experience that they all die; if these patients are given preliminary attention, thoroughly alkalinized, hot packs continuous, morphine to quiet peristalsis and Fowler or Right Lateral position, a certain number will recover sufficiently to make fair operative risks. In this series I have used cigarette drains with gangrenous appendix, when the stump of the appendix could not be inverted owing to induration, large foul retro-cecal abscesses and oozing that could not readily be controlled; however, I have closed with primary suture cases with ruptured localized high abscesses where all the pathology could be removed and the abscesses were gently cleaned out. In this series mortality has been lower than the previous two; and the lessons that I have drawn are, that experience coupled with the exercise of judgment in each patient will give best results.

My sentiments have been so clearly expressed by E. J. McCormick that in closing I would like to quote the following: "The message which I desire to leave is not heresy to the surgical faith of our predecessors and eminent teachers, but simply a statement of a growing conviction that abdominal drainage is often 'overdone,' and I certainly feel that surgery, an exact science, the highest of arts, should frown upon the indiscriminate use of abdominal drainage in cases in which its institution is largely upon suspicion. I am also of the opinion that this especial phase of abdominal work offers a large field for further scientific research. There is no desire to encourage radical departures from principles which have stood the test of time. Credit must be given where credit is due. Good surgery could scarcely countenance the omission of drainage where the procedure is obviously indicated. However, one cannot avoid the impression of consultation of the literature and in conversation with active surgeons that there is a great variance of opinion and technique."

REFERENCES

Lahey, Frank H.: Principles of Intraperitoneal Drainage. Boston Med. & Surg. Jour., Vol. 191, Nov. 20, 1924, No. 21.

Wilensky, A. O., and Ber, Benjamin N.: A Method of Determining the Question of Drainage in Intra-abdominal Infection. Annals of Surgery, May, 1923.

Gray, Henry M. W.: Some Problems of Drainage. Surg., Gynec. & Obst., Chicago, 1924, xxxix, 221-228.

Kendig, W. Dennis: Indications for and against Abdominal Drainage. Virginia Monthly, Richmond, 1926, iii, 637-639.

McCormick, E. J.: A Consideration of Abdominal Drainage. Ohio State Medical J., Columbus, 1923, March.

Farr, Chas. E.: The Gibson-Mikulicz Tampon in Acute Appendicitis. Am. Surg., Phila., 1921, lxxiii, 273-276.

UNDULANT FEVER WITH REPORT OF A CASE*

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The discovery of a case of undulant or malta fever in Colorado, probably due to Brucella abortus, is the reason for this record. To our knowledge no previous case has been reported from this state.

The cause of malta fever was first determined by Bruce, a British army surgeon, on the Island of Malta, in 1887. At that time he described the organism as a micrococcus. The disease has been known to occur in this country in a few sporadic cases, the only epidemic appearing in Phoenix, Arizona, in 1922.[1] This outbreak, consisting of thirty-seven cases, was directly traceable to the consumption of raw goats' milk. Through the work of Evans,[2] Meyer,[3] and others, a close relationship was established between the organism that Bruce had called a micrococcus and the one that Bang has called Bacillus abortus. In fact, it is generally recognized now that the two organisms belong to the same genus and there are those who would regard them as varieties of the same species. In 1924, Keefer,[4] of Johns Hopkins, described the first human case of undulant fever to be definitely shown to be due to B. abortus. This was soon followed with a case of Alice Evans,[5] two cases by Huddleson,[6] and five by Moore and Carpenter[7]. Early in 1927 Miss Evans[8] was able to collect twenty cases reported in the United States and a considerable number from other countries. Hardy,[9] of Iowa, during a six months' period in 1927, by running all blood samples sent in for Widal test, against B. abortus antigen, discovered sera positive for typhoid in forty-one cases and for malta fever in thirty-one. This seemed to indicate that in Iowa, at least, undulant fever was nearly as important as typhoid. Since that time, Hardy[10] has been able to report one hundred twenty-five cases from the single state. More than five hundred cases were reported in the whole country in 1928, so that now this illness has been located in a majority of the states of the Union and in most foreign countries. Hardy says that the number of cases reported in any state is in direct proportion to the energy displayed in the search. It seems well established, therefore, that this disease, due to the abortion bacillus, is widespread throughout the world, although it has only recently been recognized. There is, of course, no reason to believe that the number of cases has materially increased in recent years, but rather that these cases were formerly diagnosed as typhoid fever, rheumatism, tuberculosis, syphilis and possibly other maladies.

Since contagious abortion in cattle is present in most of our dairy herds, and since the organism of that disease is known to be present in most market milk, it was early assumed that undulant fever from the abortion bacillus was contracted through the drinking of milk. This seemed to be verified by the conditions surrounding some of the earlier cases. A more careful survey of the situation, however, points to the implication of swine as a source of the malady in at least half of the cases. Of Hardy's one hundred twenty-five cases, ninety-eight were in males which seems to be an undue proportion if the disease were entirely spread by milk. The further fact that the disease occurs largely in adults rather than in children would lend additional support to this view. Hardy found some fifteen cases in packing house employees where contact seemed to be a better explanation than drinking milk.

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Huddleson's[11] analysis of forty-six strains of the abortion organism isolated from man, in which he showed that twenty-five were of the porcine variety and twenty-one of the bovine, seems to still further indicate that much of the disease is due to contact with swine rather than from drinking milk from abortion infected cows.

If we may interpret the present view correctly, it is to the effect that while the disease is transmitted through milk in certain cases, yet considering the amount of abortion infected milk that there must be in this country, the number of cases so contracted is relatively small. The disease in swine must be given more attention as being the source of much of the undulant fever reported.

Our own case is as follows. H. B. L., 19 years old, student at the Agricultural College, well developed and well nourished. He had had the usual diseases of childhood, including scarlet fever. For several months he had been in the employ of a milk distributing depot but had not been associated with the cows. He had been drinking a considerable quantity of milk, but had no contact with either goats or swine. On May 27, 1928, he had stopped work and gone to his home, complaining of severe pain in his back. The fever which was associated with the malady continued for three days, to May 30th, when he entered the Larimer County Hospital. At this time the symptoms were fever, pain in the back, weakness, profuse sweating at night with chills and headache; temperature 102°, pulse 60, tongue furred, throat inflamed, chest normal, abdomen slightly distended with general tenderness; urine smoky, slight trace of albumin, no sugar, pus nor casts. As there were two cases of typhoid fever in the hospital at that time, the clinical diagnosis was typhoid. The Widal was negative. The patient remained in the hospital until July 1st, when he was removed to his home, still showing a phlebitis in the right leg. During the time in the hospital, the temperature ranged from 99 to 105, but the heart was never more than twenty beats from the normal. Pain in the back was excruciating at times, and sweating was profuse during all sleeping hours. Chills were frequent and severe and there was considerable pain in the abdomen and some diarrhoea. There was no delirium, but emaciation became marked.

On June 22nd, the Widal test was again negative as was also the macroscopic agglutination test for typhoid, paratyphoid A, and paratyphoid B. Agglutination with B. abortus antigen was positive in 1-50 and 1-100, but negative in 1-200 at this time.

After being discharged from the hospital, recovery was slow and with the beginning of the college year, the boy has continued his studies, but still complains of difficulty in the right leg. On February 5, 1929, his blood still completely agglutinated B. abortus antigen at 1-100 and gave an incomplete reaction at 1-200. A single attempt to isolate the organism from blood cultures on June 22nd failed.

Summary

A case of undulant fever in a young man is reported, which was probably due to the B. abortus of cattle and was probably contracted by drinking milk. While the organism was not isolated, it is believed that the negative tests for typhoid and paratyphoid and the positive tests with Brucella abortus antigen are sufficient to consider the case one of undulant fever.

REFERENCES

[1]U. S. Public Health Reports, Vol. 37, p. 2895.
[2]Journal Infectious Diseases, Vol. 22, p. 580.
[3]Journal Infectious Diseases, Vol. 27, p. 173.
[4]Bulletin Johns Hopkins Hospital, Vol. 35, p. 6.
[5]Bulletin No. 143, Hyg. Lab. U. S. P. H. S.
[6]Journal A. M. A., Vol. 86, p. 943.
[7]Graduate Thesis Cornell University.
[8]Journal A. M. A., Vol. 88, p. 630.
[9]U. S. Public Health Reports, Vol. 43, p. 503.
[10]Journal A. M. A., Vol. 92, p. 853.
[11]Journal A. V. M. A., Vol. 74, p. 620.

April 2, 1929.

NEWS NOTES

The Association of Military Surgeons of the United States are holding their annual meeting in Denver September 26th to the 28th inclusively. Among the distinguished foreign guests will be Major Chev. Giovanni Perilli, who has been entrusted with a mission by the Royal Ministry of National Economy.

For the first time the American Board of Medical Examiners held an examination in Colorado for five applicants for licenses. The examination was conducted by local Denver men in the wards and laboratories of the University of Colorado School of Medicine.

At the request of the Colorado State Board of Health, Dr. William C. Mitchell, Bacteriologist for the Board, is making an investigation of the Kahn test for syphilis at the Laboratories under the direction of Dr. Kahn at the University of Ann Arbor and the State Laboratory at Lansing, Michigan. It is growing more and more apparent that the Wassermann complement fixation test and the Kahn precipitation test supplement each other and that for increased accuracy of results both tests must be used.

Eighty-two members and almost as many wives and visitors attended the mid-summer meeting of the Arkansas Valley Medical Association in Salida, Colo., Saturday, Aug. 10. Sessions were conducted at the Salida Elks Club. The morning session, called to order by Fred Heller, M. D., president, was formally welcomed by the mayor of Salida. The first speaker was Harvey T. Sethman, executive secretary of the Colorado State Medical Society, with "A Program for Organized Medicine in Colorado." Jabez Jackson, M. D., Kansas City, Mo., former president of the American Medical Association, delivered the principal paper of the day, a masterful discussion of diagnostic and operative procedure for carcinoma and other tumors, entitled "Breast of the Female." Luncheon was served at the Elks Club. Frank B. Stephenson, M. D., Denver, opened the afternoon session

with a paper on "Pneumonic Conditions in Children—X-Ray Features," illustrated with slides and original X-Ray films. He was followed by F. M. McCallum, M. D., Kansas City, who spoke on "The Prostate and Its Treatment," and John H. Outland, M. D., Kansas City, closed the scientific program with "The Treatment of Some Types of Anemia." Women visitors were entertained during the afternoon at the home of Mrs. George H. Curfman. Rain interfered with plans for an outdoor fish fry, but the fish dinner was served nevertheless, in the Elks Club. After the evening meal, all took automobiles for a 22-mile drive to the Mt. Princeton Hot Springs Hotel, to dance until the small hours.

Dr. John H. Outland, Kansas City, injured in an automobile accident near Buena Vista two days after his appearance on the Arkansas Valley Medical Association Program, is recovering following an emergency operation performed at the Rio Grande Hospital, Salida, by Dr. Jabez Jackson.

Papers were read by Drs. E. D. Downing, Woodmen; John C. Darling, Durango; B. F. Jackson, Pagosa Springs, and John B. Crouch, Colorado Springs, at the quarterly meeting of the San Juan Medical Society, held July 20 in Pagosa Springs. Ladies attending the meeting were entertained at the home of Mrs. A. J. Nossaman.

Commissions as first lieutenants, medical corps, U. S. A., recently were granted six medical reserve officers who have just completed internship at Fitzsimons General Hospital. Aurora. Those commissioned are Drs. Paul I. Robinson, Waltonville, Ill.; Daniel J. Berry, Fort Benning, Ga.; William A. Hadley, Jr., Pittsburgh; Wilford F. Hill, Mr. Vernon, Ill.; Jack W. Schwartz, Fort Worth, Texas, and Clyde L. Brothers, Richmond, Va.

Dr. Paul M. Ireland, son of Dr. Merritt W. Ireland, surgeon general of the United States, has been appointed to the staff of the Corwin Hospital (formerly the Minnequa Hospital), Pueblo. Dr. Ireland will be in charge of the urological department and will act as assistant surgeon.

The State Board of Medical Examiners has removed its office to the State Capitol Building. Dr. W. W. Williams is now secretary of the board.

OBITUARY

Alfred M. Moore, M. D., superintendent of the Park Avenue Hospital, Denver, died July 26 at St. Luke's Hospital, Denver. Member of the Medical Society of the City and County of Denver.

John W. O'Connor, M. D., chief surgeon of the Denver & Rio Grande Western Railroad, Denver, died Aug. 5 at St. Joseph's Hospital, Denver. Former member of the Medical Society of the City and County of Denver.

J. N. Weddell, M. D., De Beque, Colo., died July 22 at Rifle, Colo. Member of the Garfield County Medical Society.

HAUSER IN COLORADO

A few weeks ago a healer by the name of Benjamin Gayelord Hauser appeared in Denver preaching a new gospel of health from the forum of the pulpit of the First Baptist Church. Apparently this fakir was approved by the pastor of the First Baptist Church of Denver.

We have in our possession a copy of a letter furnished by the Bureau of Investigation of the American Medical Association, written in long hand on the church stationery, signed by its minister. It runs as follows: "Thanks for your letter of the 6th inst. If you wish write the Tuberclecide Co., 233 Patterson Bldg., Denver. They will give you full information concerning the cure of which I spoke. I believe it means a new day for folk who are sick in this way."

The Bureau of Investigation has the following to say about "Doctor" Hauser:

Benjamin Gayelord Hauser conducts a rather obvious piece of quackery—the "New School of Health"—in Chicago. Hauser, it seems, goes around the country promoting diet fads and giving alleged health lectures. His advertisements have described him as a "nationally known authority on food science." It is hardly necessary to say that this claim is utterly false. He has also been described as the "internationally famous young Viennese food scientist," a claim that is equally without foundation.

On some of Hauser's stationery, he puts "M. D." after his name. Our records, based on official data, fail to show that he was ever graduated by any reputable medical school or is licensed to practice medicine in any state in the Union.

The Chicago telephone directory used to classify him as a "naprapath," but his name no longer appears. In December, 1925, a Chicago physician told us that Hauser was exploiting what he called a "vegetable salt." Hauser's particular line of quackery seems to be dietetics. He is said to hold "private classes," and one of the "profound subjects" dealt with in these classes is: "How to Wash Out All Disease by Eating God's No. 6 or Dissolving Foods."

Still another of Hauser's activities seems to be the "Illinois INA Food Factory," which sells a table salt at $1 a pound. The INA products are apparently, a later name for some of the food quackeries previously exploited by one M. E. Yergin, who has long been connected with diet fakery and chiropractic.

In the spring of 1929 Hauser was working his scheme down in Florida, where he was arrested, and our understanding is that, rather than meet the charge preferred by the authorities, Hauser agreed to leave the state. If you will write to the Chamber of Commerce at St. Petersburg, Fla., you can get additional information regarding Hauser's campaign in that state.

Let other Colorado communities beware of an unholy alliance between gullible church pastors and astute medical fakirs.

NEW BOOKS

The History of Hemostasis. By Samuel Clark Harvey, M. D. Professor of Surgery, Yale University, Surgeon-in-Chief, New Haven Hospital. With 19 illustrations. Paul B. Hoeber, Inc. New York. 1929.

The Surgical Clinics of North America. (Issued serially, one number every other month.) Volume 9, number 3. (New York Number—June, 1929), 299 pages with 125 illustrations. Per Clinic Year (February, 1929, to December, 1929). Paper, $12.00; cloth, $16.00. Philadelphia and London.

WYOMING SECTION

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EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT

OUR NEW GROUP INSURANCE CONTRACT

At the Casper meeting of the House of Delegates, June 25, 1929, an agreement was made by the House of Delegates, acting for the Wyoming State Medical Society and the United States Fidelity and Guaranty Company providing for group indemnity insurance and defense of mal-practice suits.

Under this agreement members can secure special reduced rates and at the same time secure the safest and most reliable protection in times of trouble.

Under these arrangements the saving in premiums paid will amount to the annual dues of our Wyoming State Medical Society.

A master policy covering all members for such amounts as they may desire will be issued and held by the secretary of the Society and individual certificates will be issued to the members who wish this protection.

Just a word as to the advisability of carrying policies of sufficient amounts to properly protect your interests. For a small increase in payments you secure much more protection. The tendency is for suits to be entered in larger amounts for damages and only by carrying sufficient protection can a doctor be secure and be free from the constant danger of suits by patients whose chief desire oftentimes is a little easy money; money that they hope to secure from the very men who in times of accidents and sickness have been their very best friends. As an illustration of the necessity of adequate protection, within the past month, a prominent Wyoming physician, with an excellent record of many years' standing, has been faced with suit for alleged malpractice in an amount considerably in excess of $100,000. In another instance, a physician is being sued for act of an assistant, and fortunately for both, each is carrying ample protection with the United States Fidelity and Guaranty Company. However, the first mentioned case is carrying protection of only $10,000, covering one suit, so that in the event judgment is awarded, he will be obliged to take care of the difference between $10,000 and the amount of the judgment. Inasmuch as he is also carrying policy with the United States Fidelity & Guaranty Company, the latter is defending the suit.

Elsewhere in this issue will be found a complete, yet concise, explanation of the terms and provisions under which members in good standing can secure medical defense protection at about one-third less than such protection can be bought by individual physicians, who are not members in good standing in the Wyoming State Medical Society.

Carefully read this article and apply to your local agent for the United States Fidelity & Guaranty Company for such insurance as you desire. Carry enough insurance to protect yourself from suits that may be brought against you. If you are now carrying insurance in some other company, you can apply for insurance to begin at the time your other insurance expires and thus your protection will continue with no lapse or unprotected interval.

Many other state societies are using this group form of insurance and there is no question as to the financial standing or repu-

tation of the United States Fidelity & Guaranty Company.

If you wish you may write to your state secretary asking any questions about this contract which are not clear to you. E. W.

ONLY A FLOWER

Tottering up the street went an old man. He was dressed in clean, freshly washed blue overalls, a straw hat that had seen better days protected his white head of hair from the bright, hot rays of a July afternoon. He paid little or no attention to the passers-by as he carefully picked his way along the sidewalk. Few people seemed to notice him as he walked among the crowd and he in turn paid very little attention to others. Yet there was something unusual in the man, his surroundings and actions. When he approached nearer, it was explained. In his right hand he held a small bouquet of old-fashioned garden flowers. They were like the man; old-fashioned and not the latest and most modern creations of the up-to-the-minute florist. A few snap dragons and pinks, but to his mind the most beautiful of flowers. As he plodded on we wondered where he was going and what he planned to do with these flowers.

Shortly after we see him enter the hospital and there give them to an old lady.

It was an offering of love, and just how much it meant none can tell. E. W.

GROUP INSURANCE AND WHAT YOU CAN BUY

A group plan for professional liability insurance in the United States Fidelity & Guaranty Company, covering the members of the Wyoming State Medical Society, was approved at the annual meeting at Casper. Under this plan a master policy is issued to the Society as a group, but each member is free to take such amounts of insurance as his best judgment dictates. The group rate is 30 per cent less than the individual rate. Each insured member receives a certificate showing the amounts of his insurance and containing a reprint of the master policy. The latter instrument is held by a trustee to which position Dr. Earl Whedon was elected by the House of Delegates. Members who are now insured can join the group at once or at the expiration of their present insurance.

The policy covers claims or suits based upon the following:

a. Malpractice, error, negligence, or mistake, or
b. Autopsies, inquests or personal restraint, or
c. The dispensing of drugs or medicines, or
d. Arising from any counterclaims in suits brought by the insured for the collection of fees, provided such damages are claimed under paragraphs a, b or c.

Provided the events on which suit or claim is based occurred within the period covered by the policy, the company agrees to defend any suit at any time filed. A physician carrying a policy, for example, during the calendar year 1929 is protected for all of his practice during that year, no matter when a claim against him is made. The company is obligated to defend any suit, regardless of expense, until all legal remedies have been exhausted.

An important provision of the policy contract relates to compromise of suits or claims. This clause is so drawn as to give the utmost protection to the assured's reputation. It is provided that no compromise shall be made without the written consent of the man against whom claim is made and the written consent of a majority of a committee of five members of the group.

The lowest amount of insurance that can be purchased is protection up to $5,000 for damages to any one injured person and subject to the same limit for each person, the company's total liability is $15,000 during any one policy year. Damages today are being asked in such amounts as $25,000, $50,000 and $100,000 and the tendency is for juries to be more and more liberal in their awards. While this condition may be lamentable, it is still, nevertheless, to be reckoned with.

The cost of coverage in amounts of $5,000 and $15,000 is $25.00 for men not members

of the association and $17.50 for members. Based upon the $17.50 rate, other amounts cost as follows:

Protection Per Claim	Protection in Policy Year	Premium
$10,000	$30,000	$23.33
15,000	45,000	26.25
25,000	75,000	29.75
50,000	150,000	35.00

From the above it is apparent that the larger amounts of insurance are relatively the cheaper. Double the premium paid for $5/15,000 policy gives ten times the protection at a cost of $35.00 per year. A number of members have already taken $50/150,000 policies.

A physician may be, and they have been, sued for acts of their assistants. The company requires that regularly employed assistants be covered. To protect the employer's interest in their practice costs 50 per cent of the premium paid by the employer.

The company then defends the employer only and only pays judgments assessed against him. To have the company defend both the employer and his assistant, and pay judgments against either or both the employer and his assistant, and pay judgments against either or both, the assistant must take a policy in his own name at the full premium rate. An assistant for whom premium is charged is a regular employed physician, surgeon, dentist, anaesthetist, x-ray or radium technician. While a trained nurse, laboratory technician, x-ray technician for diagnosis only, or "office" employee is an assistant, his other professional duties and the consequent hazards are limited and the United States Fidelity & Guaranty Company makes no additional charge for them.

While an assured is protected under the terms of policy contract for acts of an assistant, said assistant is **not** protected in the event he is also sued unless he is carrying similar form of insurance with the United States Fidelity & Guaranty Company, in which event the 50 per cent additional charge under the employer's policy for assistant is eliminated.

Each partner in a firm of physicians or surgeons pays the same premium as is charged the individual practitioner, but the company has just ceased making an additional charge for covering the interest of the partnership as such. Where there is an incorporated clinic, claim experience shows that a charge must be made both for the clinic and the physicians composing it.

Private hospitals, such as are operated in some towns of the state, present their own special insurance problems and each case is best handled by itself. A member's insurance under the United States Fidelity & Guaranty group plan automatically ends when he ceases to be a member of the State Society, or he may cancel at any time by his own wish. In either event, he receives return premium for the unexpired term. It is most important to note that the company cannot cancel either the group policy or the insurance of any individual insured thereunder, but can refuse to renew any individual's insurance or the group policy itself by notifying the trustee thirty days prior to the anniversary date.

The United States Fidelity & Guaranty Company has arranged that each insured member shall take his insurance through its agent in his own town. This not only enables the member to give this business to a fellow townsman but means that whenever a claim does arise the assured will get local service. When suit is threatened, notify the local agent or the Denver office, where a full claim adjusting force is maintained.

Carrying this professional liability insurance in a group should bring the members of the society into closer co-operation. Unfortunate results do not mean that the practice was improper, but in the public mind they are often regarded as cause and effect. No one is immune from suit and one such affair will cost enough in counsel fees and lost time and worry to pay many years' premiums.

Father: When George Washington was your age he was a surveyor.

Son: When he was your age he was president of the United States.—Ames Green Gander.

Rastus was asked by a white friend what he would do if he had a million dollars. "Well," said he, "dey ain't no question about it, I'd have butter and gravy bofe on de same piece of bread."

TICK TOXEMIA

CASE REPORT

Case: J. H., boy 10 years old, who had been helping his father in the timber in southern Wyoming, got up on the morning of June 20th and complained of weakness of his legs which would not co-ordinate: Staggering as if he were drunk, so he said. Seemed to be getting weaker and ran a little temperature with nausea and vomiting.

The boy was brought to Rawlins, June 22nd, and upon examination found a fairly well developed lad with a temperature of 100, acceleration of pulse and in a very weak condition. After getting the above history, endeavored to get the boy to stand up and he had to be supported stiff-legged against the bed. Could not walk. It seemed that he had paralysis. No patellar nor abdominal reflexes, no retraction of the head, absence of Kernig's and Brudzinski's signs.

Next day, June 23rd, called in Dr. A. O. Sanden. This paralytic condition had become more marked, and the patient seemed to be very drowsy; in fact, he would seem almost asleep but would rouse when addressed and his attention was held. He was unable to lift either leg from the bed, and could not raise his head, and when his body was raised, his head fell back. There also seemed to be a partial ptosis of the left upper eyelid and a drooping of the corner of the left angle of the mouth, and the lad complained of seeing double with both eyes open, but with one eye closed, this did not affect him. He complained of no pain. Reflexes were still absent, and upon stroking the bottom of the feet, there was a very slight response of the great toe. Temperature today was subnormal and pulse was good. Very great weakness and the family were very anxious of the outcome. When seen in the afternoon, the symptoms seemed less prominent.

As I was going to Casper to the Wyoming State Medical meeting, left the patient in the care of Dr. Sanden, and with these progressing symptoms, did not see how this patient could recover, and anticipated his death before my return.

The mother asked if she might bathe the boy and change his clothes, and consent was given.

While at Casper, at the smoker, I tried to describe this case, and asked for opinions. Central brain lesion and other neurological conditions were suggested, but Dr. Earl Wheden asked me if I had gone through his hair or over his body for a tick.

Dr. Wheden informed me that those symptoms would sometimes appear from the presence of a tick, and when the tick was removed that the symptoms would disappear very rapidly.

Upon my return Wednesday, June 26th, was informed that after I had gone, they gave the boy a bath and found a tick on his back which they removed. Within three hours that same afternoon, June 23rd, he seemed to improve greatly and desired to get up and did get out of bed and walk around and the next day was out in the yard. When I saw him June 26th, he seemed fully recovered and was returning to his home.

With such severe symptoms of prostration and paralysis, and with such rapid recovery following the removal of the tick, I thought this case might be of interest to others in this tick-infested district.

C. W. JEFFREY, M.D.

He: Your petticoat shows.

She (snootily): What does it show?

He: That you're old-fashioned.—Northwestern Purple Parrot.

NEWS NOTES

Dr. C. E. Stevenson of Sheridan, who attended the Portland meeting of the A. M. A., recently returned from a side trip to Alaska. The Sheridan County Medical Society is looking forward to a very interesting account of this trip which the doctor has promised to make.

Dr. C. H. Solier, superintendent of the Wyoming State Hospital at Evanston, has supplied reprints of his article which appeared in the July number of Colorado Medicine, entitled "The New Wyoming Lunacy Law," to all clerks of court, sheriffs and county attorneys throughout the state.

Just how important it is that these officers of the law shall grasp the changes made by the new law and carry them out is given in the doctor's paper and one of the good things that shall come from the sending out of this article is that more real scientific committments will be made and many lives protected, which under the old laws were in danger by failure to commit persons really insane. The average lay jury in the past only restrained persons who were so violently insane as to require force for their handling. The most dangerous cases being allowed to live in the communities under the classification of, "somewhat queer."

Dr. Harvey J. Bradfield of Monterey, Cali., visited his friends in Sheridan recently. Dr Bradfield was one of the early doctors to locate in Wyoming and now is most comfortably located in Monterey.

The officers of the Colorado State Medical Society have extended an urging invitation to the members of the Wyoming State Medical Society to attend the Fifty-ninth Annual Session of the Colorado Medical Society, which is to be held in Greeley, Colo., Sept. 3, 4 and 5. The Wyoming Society feels honored in the receipt of this invitation and no doubt many Wyoming faces will be found at Greeley on those dates. One of the chief factors in this attendance will depend upon the condition of the roads at that time.

Jack was a worthless and improvident fellow. One day he said to the local grocer: "I gotta have a sack o' flour; I'm all out and my family is starvin'."

"All right, Jack," said the grocer. "If you need a sack of flour and have no money to buy it, we'll give you a sack. But, see here, Jack, there's a circus coming to town in a few days, and if I give you a sack of flour, are you sure you won't sell it and take your family to the circus?"

"Oh, no," said Jack, "I got the circus money saved up already."

"While I was out with some of the fellows the other night, a burglar broke into our house."

"Did he get anything?"

"I'll say he did—my wife thought it was me coming home."

We Know

Friend: "So your son is in college? What is he preparing for?"

Father: "Don't know, but from the way he works me I rather think he's going to be a diplomat."

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WILLIAM ALFRED KICKLAND
President-Elect of the Colorado State Medical Society

WILLIAM ALFRED KICKLAND

At the regular annual meeting of the House of Delegates of the Colorado State Medical Society, Dr. W. A. Kickland of Fort Collins was made president-elect of the Society for the ensuing year without a dissenting vote. A review of Dr. Kickland's successful life is ample proof of the wisdom of this unanimous support of the delegates.

He was born in Crystal, Mich., 1868. He was awarded the degree of bachelor of science in 1892 for work done in biology in the University of Michigan. At the same institution he was instructor in biology in 1893, demonstrator in anatomy in 1894, and assistant to the professor of gynecology and abdominal surgery in 1895. He received his degree of doctor of medicine from the University of Michigan in 1895.

He went to Fort Collins directly after graduating where he has practiced general medicine and surgery for thirty-four years.

He took the regular course at the Chicago Post Graduate Medical School and in 1903 the regular course in the New York Polyclinic Post Graduate School. He spent five months in Vienna in graduate work in 1907 and was on the clinical tour in Europe in 1914. He was in the World War with commission of captain from July, 1918, to January, 1919. He has been a Fellow of the American College of Surgeons since 1922, and was on the clinical tour of the American College of Surgeons to South America in 1923.

Dr. Kickland needs no introduction in Colorado. His success has been no accident. The State Society is fortunate to have secured his executive service at this critical period of proposed expansion and heightened efficiency.

THE GREELEY MEETING

The thing that deserves first mention in a review of the Greeley meeting is the successful planning and labor of the local committee on arrangements headed by Dr. N. A. Madler, and of the program committee under direction of Dr. J. J. Waring. There was every reason to expect in advance that a meeting held in a smaller city not located centrally with regard to the membership might fail materially in attendance and interest. Such an outcome could easily have occurred without active and steady work and attention on the part of both committees.

The program no doubt played a big part in attracting an attendance which registered 342—about a third of the entire membership and equal to the registration expected at such a center as Colorado Springs. The commodious quarters of the State Teachers' College ideally fulfilled all requirements for meetings and exhibits, and the atmosphere of an institution of learning pervaded the session, contributing to a receptive state of mind for the studious and furnishing for all a throw-back to old college days.

The program was outstanding in the number and quality of the lecturers from out of state, all of whom retained the interest of their audiences to the last word. The rather breath-taking demonstrations of Dr. Robertson, which pointed to cell transition from the normal to the malignant type, were offset by the revelations of the Canti moving film as to cell culture and response to radiation, shown and explained by Dr. Florence Sabin. These two gave apparently opposing impressions of the nature of malignant cells, which are nevertheless possibly subject to correlation. Dr. Hartman held his hearers spellbound by his lucid clearing up of the complications brought to the front in the symposium on acidosis. Dr. Sabin's report of experiments at the Rockefeller Institute made with the tubercle bacillus lipoids revealed valuable achievements in a fundamental study of tuberculosis pathology. Professor Carnett stood his ground squarely on the differential diagnosis between intercostal neuralgia and pain from intraabdominal lesions, both in his clinic and address. His evangelism on this subject should result in increased wariness of the surgeon and internist toward elimination of these neuralgias as possible causes of pain in uncertain cases. It is regrettable that Dr. Lennox was unable to fill his part on the program. His



COLORADO STATE MEDICAL SOCIETY MEETING AT GREELEY
On Campus of State Teachers' College. Complimentary Luncheon 12:30 p. m., September 3rd. Left—Dr. H. E. Robertson, Mayo Clinic. Center—Dr. Henry Sewall, Denver. Right—Dr. Florence Sabin, Rockefeller Institute for Medical Research



COLORADO STATE MEDICAL SOCIETY MEETING AT GREELEY
Complimentary Luncheon on Sept. 3, 1929, on Campus of State Teachers' College, Given by Weld County Medical Society

injuries received in a flood were such as to temporarily incapacitate him, though not otherwise serious.

Mr. Paul M. Clark emphasized the advantage of a Society liability defense plan, not so much to furnish simple legal defense in itself, as to cause physicians in general to avoid unguarded or careless criticism of their fellows; for under a defense plan such actions would be brought into the open in the course of investigation of the merits of a case. It must be admitted that many times thoughtless remarks of a doctor are the beginning of a malpractice suit against his fellow.

The papers furnished by members were generally of a high character. The courageous address of President Senger appears in this issue of Colorado Medicine. The program was marred by a serious situation, and that was the switching of numbers from one hour to another, and even from one day to another, so that members who perhaps could attend only one day of the meeting or were on hand at the appointed time to hear and discuss a certain paper, were in some instances disappointed. The Thursday afternoon session was so dragged out that a number of valuable papers were read before a scattered few hearers. It is a grievous fault. It is caused by two things, first a crowding of the program to begin with, and without any provisions for contingencies which invariably occur; and, second, a failure of those reading papers and discussions to abide by the time limit set by the by-laws of the Society.

The scientific exhibitors this year were few, but their exhibits deserve the compliments of the Society. The x-ray exhibit especially was varied and large, and illumination much better than heretofore.

It is believed that those who had the management of the meeting in their hands will agree that the work of the new executive secretary demonstrates that his office is a valuable and much desired adjunct. Another year should remove all doubts on that score.

May I suggest that in the future we observe the following rules with regard to the scientific meetings:

1. Put only as many papers on the program for each morning or afternoon as can easily and comfortably be disposed of, with plenty of time for ample discussion.
2. Allow sufficient gaps to cover unforeseen contingencies.
3. Inform invited lecturers in advance of a definite time limit. Any one will be grateful to know beforehand what is expected of him in that respect.
4. Strictly enforce all rules of procedure.
5. Do not consent to eleventh-hour revision of a completed program.
6. Preferably leave Thursday afternoon free.

A preconvention impression was that of a meeting in hot weather in a medimum sized town in a part of the state distant for many of the members, where housing might be inadequate or substandard and attendance small. The postconvention impression is a lasting one of pleasant lunching under shading elms on a cool day, enjoyable friends, educational feasts in an appropriate atmosphere, golf, swimming, dancing, movies, lantern slides, controversies, hurry, bustle, exhibits, learned talks, jubilee singers, squashes, raincoats, a bumped head, a lost suitcase, a beautiful city and clean, with Dr. Madler and his cohorts ever present here and there. We trust the committees have the smug feeling that goes with a job well done.

F. B. S.

Frauds, Fakirs and Faddists
Yosmite Nabona

An individual named Yosmite Nabona had been running a sanitarium in the Black Forest of Colorado, known as Navajo, which is not listed in the files of the American Medical Association, for some time when he appeared last September before the state board of Colorado to take the examination for a license to practice medicine. He stated at the time that he was a graduate of the University of Berlin Faculty of Medicine in 1896, but his diploma looked doubtful and an investigation was made and it was learned from the University of Berlin that such a man had never been on their records. He was refused permission to take the examination in October, 1928, but continued to run his sanitarium on the grounds that he was not practicing medicine. In the latter part of November he was called before the board of health in regard to his application for permit to run his sanitarium, but in a week wrote withdrawing his application, stating his decision to leave the state. According to the files of the American Medical Association, he is not licensed to practice medicine in any state.—Federation Bulletin.

SOME FALLACIES IN MODERN MEDICINE*

WILLIAM SENGER, M.D.
PUEBLO

The physician of today is in much the same position as modern religion—more often ridiculed than praised. Some of this criticism has been acquired through our own carelessness; some forced upon us through no fault of our own. Perhaps it would be well to consider some of the causes that have brought about this situation.

Health of the individual is his greatest asset. With it, all things human are possible; without it, his handicap is often insurmountable. In the struggle for health, one is willing to sacrifice his all. We know this is true and it is to our credit that we rarely hear of a physician taking unfair advantage of the sick.

Nevertheless, in our anxiety to aid, have we not been prone to regard the scientific side of medicine as paramount?

Have we not lost sight of another and equally important side—the Art of Medicine?

Do we realize that much of Art in Medicine, allowed to drift into decadence, appropriated and misapplied by the unprofessional and unscrupulous, has been sacrificed on the altar of Science? Would Mary Baker G. Eddy have been known outside of her own household had the physician of her day realized the Art of Medicine hidden in applied psychology?

Would the chiropractor have ever existed had we given a little thought to personal and needed manipulations in selected cases?

In years gone by, diet was often ignored or carelessly outlined. What a chance for quackery!

With disgust we now see syndicated articles in our daily papers—the subtle advertising of an ignoramus parading as a scientist—starvation diets, orange juice, diet cures for everything from brain tumor to bunions. Salt baths, mud baths, colonic baths, anything to capitalize the ills of the public by giving them a new thrill!

Thus our neglect has given rise to numerous obnoxious cults, prosperous through active advertising. They seize upon one of our theories, scramble it with filth, fraud or froth and blatantly herald it as the only original cureall.

We, ourselves, are to blame for this. When we seriously unite Science and Art, these cults will gradually fade.

Not for one moment should we minimize the marvelous strides in modern medicine. Commonplace recoveries of today were the miracles of yesterday. Science in medicine has made most of this possible. This attitude has gradually forced art into the background—where its many valuable lessons are often forgotten.

Scientific medicine is expensive. How many physicians of today will diagnose a fracture without an x-ray? How many of us demand a leucocyte count before venturing a diagnosis of acute appendicitis? Scientific adjuncts are important—but are they always necessary in self-evident pathology?

In making a scientific diagnosis, costs mount with alarming rapidity. It is justifiable to ignore the price when life or limb is in danger in the obscure case. But make his illness cost the patient as little as possible and do not let science obscure common sense; otherwise he may believe scientific prayer cheaper and just as good.

Science dictates antitoxin in diphtheria. We all agree. The period, however, between its administration and its maximum benefits is several hours. The Art of Medicine has long pointed the way to care for the little sufferers in this interim. Do we give this care—or do we pack our grip and leave, giving no heed to this period of waiting and anxiety?

Gastric hemorrhage — postoperative and otherwise—causes terror in us all. Science dictates injections of coagulants—the Art of Medicine years ago suggested washing the stomach with hot half-strength vinegar solution. Trust the latter—it works.

Science gives iron and arsenic intraven-

*President's address delivered at the fifty-ninth annual meeting of the Colorado State Medical Society, Greeley, September 3-5, 1929.

ously for anaemia at $3.00 per injection. Art prescribes free sunshine and spinach at 10 cents a pound.

The demon orchestra—the confusion of the city—the discordant rattle and roar of traffic—the tattoo of the steel rivet—the ear-splitting shrieks of whistles—the bellow of horns—the clanging of bells—the nervous tension of competition and stock market all urge modern men to greater speed.

The strain of social rivalry, the digestive tax of pink teas, alcoholic dinners, bridge tournaments and late hours force many a woman beyond her strength. If energetic, both sexes often fail to adjust their activities to the capacity of their nervous systems. They become restless, unhappy and finally psychoneurotic. The head of the family is morose or steel. His wife spends her life in a round of sanitoria.

Science dictates examination and re-examination of these cases in an attempt to find some underlying physical defect. Art, however, advises a vacation with a fish pole and a golf club. Art wins.

The fat, middle-aged, and the flat-chested, round-shouldered youth are struggling to be physically fashionable. Impatiently we frown upon such nonsense and inevitably driving them to "reach for a cigarettes, instead of a sweet."

When wrecked, they seek our aid—pitiable remnants of mistreated bodies. They expect a cure and still retain that "fashionable figure." Try to educate them and quickly you find that education is the only known commodity of which the people refuse to get their money's worth.

In no other class of cases does the Art in Medicine demand more. Dismal failure and disaster will surely follow if we neglect to individualize each patient and such neglect is the capital crime against our art. Therein lies the opportunity given, and eagerly grasped, by the unprincipled, mercentary exploiter of the afflicted, masquerading under the banner of a modern cult.

Scientific Medicine is still so incomplete that successful practice must constantly have recourse to Art; without Art, Science in Medicine will still fight a losing battle in many diseases.

But surgery is scientific, you urge. The scoffer has replied: "You merely cut what's soft, saw what's hard, and tie the bleeding places."

No where is the decadence of Art in Medicine more keenly felt than in the passing of its greatest exponent, the old family physician. This rugged pioneer has disappeared in the city. You may still find him struggling courageously in the country where, as of old, he is the friend and counsellor of his patients—the keen demonstrator of practical psychology—the kindly, self-sacrificing, fatherly gentleman who soothes the paths of the sick—comforts the distressed, skillful and undaunted in the presence of the desperate case, and recompensed in the vague hereafter—if the crops don't fail. His well-to-do patients go to the city; the poor remain with him always and praise his ability to others with equally empty pocketbooks. While he may be unable to analyze a sputum, he knows the cause and treatment of that persistent cough. Long application of his art—common sense—has made him keen. He has had to stand or fall by his own resources—and he has always stood! He deserves far more credit than the city specialist who has laboratory, hospital, nurse and consultant upon whom to call at a moment's notice. Regrettable though it is, the old family doctor will soon be but a memory.

With his passing there has come increasing educational requirements; more scientific methods; practical disappearance of many contagious diseases; the demand for hospitalization; and finally the specialist and organized medical groups.

With these changes, the cost of illness has mounted higher and higher. The physician is always blamed for this, but should he be? How often do we have a patient in moderate circumstances who demands all the luxuries —hospitalization in a private room with bath, high-priced special nurses for day and for night duty—to say nothing of the demand for other costly and often unnecessary extras? In this kind of patient, the longer

he remains in the hospital, the less the physician gets. Money is inelastic.

The doctor is expected to maintain a decent standard of living. To do this he, as everyone else, must charge more than formerly; and, unfortunately, at times, may yield to the temptation of over charging. For this he is universally and rightly condemned. On the other hand, he should receive a proper wage—especially since his opportunities for earning a livelihood are ever narrowing.

One great factor in diminishing the physician's income is the limitation or even elimination of many epidemics through sanitation. In nothing has altruism in medicine shown so brilliantly as in this respect. Again, schools and municipalities vie with each other in having examinations so conducted as to exclude the physician from much that has been his legitimate work.

A rapidly enlarging canker is the visiting nurse. Her visits to those worthy will ever have our support. Each one of us, however, readily recalls gross infringements; how she has called upon the unworthy, has diagnosed and prescribed, oblivious to the crime of entering the realm for which she is not licensed —therein practicing medicine illegally.

Whenever nothing else suggests itself, charity organizations are prone to ask for a survey—of the tuberculous in Colorado, of teeth or tonsils or hearts in school children—and the doctor is asked and does all this free of charge. What charity organization would dare ask the grocer, the clothier, the banker or the lawyer thus to sacrifice his time and strength without reward? Is it not time to give to those in need of charity—and to them only? If not, we may be confronted, in a few years, by a socialized system of medicine far worse than that recently foisted upon England.

No doubt great good has come out of some of these changes. On the other hand, will it fully balance the great harm done by producing, first and foremost, the undeserving charity and its consequences—a rapidly increasing class of chronic medical paupers, socialists and liars?

I do not believe there is one physician in this audience who will not respond to a deserving call for charity. I do not believe there is one who will not give as much of himself to that call as to the wealthiest of his patients. But should you give yourselves indiscriminately without some investigation?

In a recent survey it was found that only 35 per cent of the work done by physicians in Denver was paid for. No one in this State Society believes for a moment that Denver is so poverty stricken that 65 per cent of her medical cases are worthy charity. Someone is blundering.

The entire medical bill of the United States is about the same as this country's combined expenditures for cosmetics, perfumes and tobacco products. How many of our charity patients would give up these modern accessories to pseudo beauty and comfort in order to pay the doctor his due?

The man in a ragged coat often has an automobile, is making payments on a radio, a phonograph or a saxophone. His wife wears silk stockings and his daughter is smeared with costly cosmetics. They are all regular supporters of the movies. They pay for what they must. When illness overtakes them, how many of them get medical charity—so easy for the asking?

We have our community chests. Executives care for the funds. How often and how much do they care for the physician's time and worry? The social worker is paid. She should be. To indicate the importance of charity in medical care, she must show large numbers treated. To do this, will she stretch her conscience to include the unworthy?

In spite of our boasted prosperity, nine million people receive free medical treatment yearly in the United States. Someone is careless.

During the World War the cry went up—"Give until it hurts." Most of us did. Once the giving habit contracted, we Americans went on a charity debauch. As a nation we have never done things quietly and sanely. Without counting the cost we are still giving lavishly and too often so unwisely that "it hurts."

Rivalry in charity has become a national

obsession; churches, societies, municipalities, and individuals vie with each other in the orgy. To such limits has it been carried, that the following is an example:

The social climber—desiring recognition—founds a charity hospital. To attain her ambition she invites the prominent—president, governor and judge—to be on the advisory board. They cannot refuse. A sumptuous building is equipped, executives selected. Now for some patients—for she really must have some patients—otherwise her social ambitions would be ruined.

With total disregard as to the worthiness of the individual she goes into the highways and hedges to get patients. A formidable array of high-class specialists are appointed on her staff. These are led to believe that they are doing a real charity in caring for her patients; each case is supposed to have been carefully investigated prior to admission. These doctors perhaps never learn that they are the essential dupes in the schemes of a selfish social climber.

What has been said might be construed to mean that there is only one side to the abuse of medical charity; there is another side.

The average physician is an individualist. As such, he may inadvertently do harm to the profession as a whole. Often he volunteers to work in charitable institutions. There are good reasons for this. The nature of his profession demands much charity on his part and he gives freely and gladly. This is especially true of the recent graduate who has high ideals. He also wants practical experience and above all he detests the idleness of the long waiting period until he becomes established. Furthermore, he hopes that, by hospital contacts, he may show his worth to older physicians and the more quickly gain a foothold. Later he becomes deeply interested in the work itself as he finds that it broadens him and improves his technic. He stays on the staff indefinitely. At first he is afraid to express his opinion about unworthy charity; later he becomes too busy to pay attention to this problem, believing that this should be investigated by others.

We, therefore, find confronting us a vicious circle—the doctor who is an individualist; the charity executive who must justify expenses incurred by the number of cases treated; and the visiting nurse who confuses poverty, laziness and sympathy.

These three may gradually change a respectable family into medical paupers. Once pauperized, they do not change.

Only a few years ago pauperism and alcoholism were closely associated in our minds. Since the advent of prohibition we must admit that real pauperism has materially decreased. Prohibition, poorly enforced as it is, is largely responsible for the betterment of the laborer and his family. In spite of this, an intensive effort is constantly being made by the enemies of the eighteenth amendment to enlist the physician under their standard. As **citizens** we have a right to our opinions; as **physicians** and particularly as an organization we should weigh our thoughts with the utmost care before venturing to announce publicly our beliefs concerning this vital question.

From earliest times alcohol has been classified as a stimulant, now we know its principal action is to depress the higher cerebral centers. When these let go, one's veneer is wiped away and the individual reverts to a lower type—approaching the idiot in direct ratio to the amount of alcohol consumed.

I believe that alcohol has no place in modern medical practice. I believe that alcohol should be abolished as a medicine. I believe our patients would have a better chance of recovery were alcohol never used in the treatment of disease. The only exception is the chronic alcoholic who must feed his habit.

As physicians we have no right to talk of interference with "personal liberty." Do you know of any law which does not interfere with some individual's personal liberty?

Even if we admit that alcohol is of slight benefit in medicine, does that infinitesimal good balance the degradation and misery it has caused?

Why should we physicians not have courage to meet the issue squarely—and unequiv-

oeally fight for the truth—that alcohol is a poor food, a worse drug and a damnable eurse to humanity—siek or well?

Our lot has been a hard one throughout the ages. We have always been unjustly criticised and ridiculed. To our detriment some of our best endeavors are eapitalized by others. A real advanee in medieine causes a rebellion among many who should know better. Every medieal discovery makes for fewer patients. Our ideal is to have no patients through early prophylaxis and treatment.

And still we earry on. Why? Because of all professions, we realize ours is the most interesting.

Our rewards are largely from within.

The gratitude of the young mother, the affeetion and eonfidenee of the little child, the dependence and adoration of the aged, repay a thousand fold our many disappointments, disillusionments and heartaehes. As a profession we want to do what is wise and right for the people as a whole—and in so doing we have the reward of knowing that we have given our best.

And as the years pass, may we so live and aet in our profession as to deserve the tribute paid reeently to one of our former members. Upon his death his obituary notiee was headed—"A friend has passed."

WHAT IS EPILEPSY?

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In order that the growing volume of literature on the subject of epilepsy may eontinue to have value, it is beeoming increasingly neeessary that we agree upon what we mean by the word "epilepsy." Even among those authors who agree that epilepsy is not a disease but a symptom, there is a eonspieuous tendeney to eonvey the impression that it is, nevertheless, something definite that lurks behind a multitude of the most diverse symptoms, mueh as the pathologieal entity "essential epilepsy" lurked behind the deseriptions of the older authors. So long as the word retains its old eonnotations nothing is gained by changing it from the eategory of diseases to that of symptoms. Since the praetieal problems of treatment and prognosis hinge upon whether epilepsy eonnotes a unity that is in essentials one and the same, or a medley of phenomena that are not neeessarily related, it would seem permissible to direet attention briefly to some considerations that justify the latter connotation.

The mental picture usually evoked by the word "epilepsy"—unless that word is earefully qualified—is the pieture of sudden uneonseiousness, a ery, a sudden fall, a more or less severe convulsion that is usually at first tonie and then elonie, a period of stupor, a reeurrenee of sueh attacks aeeompanied with mental deterioration, and a final deseent into dementia.

But while this is what the word most easily ealls to mind it is not the most usual manifestation of the disease. Even where the attaeks conform in other respects to the description just given, there may be no impairment of the mind. On the eontrary, the disease may eoexist with extraordinary mental ability, physieal enduranee, and strength of charaeter. Those who have eome mueh into eontact with epilepsy outside of hospitals have all probably seen instanees of this. The list of historieal personages of great ability who have had indubitable **grand mal** is a long one. It ineludes Julius Caesar,[1] Peter the Great,[2] Charles V.,[3] Honore Balzae,[4] Feodor Dostoevski,[5] Gustave Flaubert,[6] and many others.

These and other like instances do not exaetly fit into the pieture of epilepsy with which we started. A further deviation oeeurs when the attaeks oeeur during sleep when neither the patient nor his friends are aware of them. Here, sinee the convulsion itself is not seen, the physician becomes so preoeeupied with eertain subsequent indications such as a sore tongue, a blood stain on the pillow, an extravasation beneath the

conjunctiva, ecchymoses on the face, or a severe headache, that these subsequent indications are apt to fill the whole picture and become, for the moment, distinctly epileptoid in and of themselves.

Indeed, so conscientious and authoritative a writer as Sir William Gowers[7] lapses from his usual accuracy so far as to say that all of the above mentioned signs, except the headache, are of unequivocal epileptic significance. One wonders why he excludes headache. It is true that headache occurs in pretty nearly every disease and minor ailment that there is, and is therefore not unequivocal evidence of anything, but this is also measurably true of all the other indications of nocturnal epilepsy that Gowers mentions.

For example, petechiae, ecchymoses, or purpuric spots may occur in typhoid fever, typhus fever, relapsing fever, smallpox, scarlet fever, yellow fever, toxic gastritis, measles, whooping cough, influenza, diphtheria, hemophilia, rheumatic fever, cerebro spinal fever, diabetes mellitus, obstructive jaundice, hypertrophic cirrhosis, cancer, tuberculosis, Bright's disease, chorea, hysteria, angioneurotic oedema, and the debility of old age.

The list of maladies of which a sore tongue may be a symptom may not be quite so long, but it is long enough to deprive a sore tongue of any pathognomonic significance in epilepsy or anything else; and the same is true of blood stains. The concurrence of **all** of the symptoms enumerated by Gowers as indications of nocturnal epilepsy would be significant — highly significant — but this significance would not be unequivocal. Unequivocal is a strong word, and in this whole ambiguous world I know of no combinations of circumstantial evidence to which such an adjective can properly be applied. The principle of accidental coincidence is too deeply embedded in the heart of things. Whatever epilepsy is or is not, if it is anything definite at all, it is something more than an ecchymosis, a sore tongue, a blood stain, and a morning headache.

However different may be the course and consequences of epilepsy in different cases of **grand mal**, these differences are the least of the variations in the picture of epilepsy as a whole. In a given case of epilepsy there may be no cry, no fall, no convulsion. The patient may simply suffer a momentary lapse of consciousness and sit with a pallid face and staring eyes till consciousness returns. In these minor attacks there may be no actual loss of consciousness, but a mere obscuration; and Gowers[8] states that in the cases in which the attack consists of a sudden start or a visual sensation, consciousness may be entirely unaffected. An attack of epilepsy in which there is no convulsion and no disturbance of consciousness —in which there is nothing but a sudden start or a visual sensation—is a far cry indeed from the horrible picture of epilepsy presented by the full-blown convulsion of **grand mal**, yet we designate it by the same horrible name.

Jacksonian epilepsy is a still further complication of the picture of epilepsy. Here there may never be any disturbance of consciousness or any general convulsion. The spasm is apt to be limited to a single muscle group of the face, arm, leg, thumb, or other part of the body. It may consist merely of a slight and entirely painless twitching which causes no inconvenience and forebodes no evil consequences, or the spasms may later become general. I am not aware that any authoritative writer has yet thought of including among the local epilepsies the painful tonic spasm that is commonly called a cramp in the leg, but I wonder why. The mere fact that a spasm is tonic does not exclude it from the epilepsies, as the phenomena of **grand mal** clearly show; and the inclusion of fatigue cramps—along with the Jacksonian twitchings—in the category of epilepsy, would be a long step toward making the whole world kin under the broad mantle of epilepsy.

But even according to generally accepted authorities the multiformity of epilepsy extends far beyond this point. There is some resemblance between epilepsy and ordinary fainting spells; and frequently repeated fainting spells have been known to be fol-

lowed finally by clearly marked epilepsy. Competent authorities have found a relationship between epilepsy and Raynaud's disease; between epilepsy and asthma; and more particularly between epilepsy and migraine.

Here again one wonders why we have stopped among the headaches at migraine. Migraine certainly bears a closer resemblance to other headaches than it does to an epileptic fit. If migraine is the blood brother of epilepsy, the other headaches must at least be second cousins.

Raynaud's disease, as of course is generally known, is a local vascular disturbance which, in its mildest form, is an ordinary chilblain. In a somewhat more severe form it causes one or more fingers to become white, bloodless, and painful on a cold day. In a still more severe form it may cause local gangrene. Osler[9] says of it, "Epilepsy has been reported in a great number of cases, and in one case in my clinic . . . the attacks only occurred in winter when he had Raynaud's disease."

Of asthma Osler[10] says, "The attack may be associated with neuralgia or . . . even alternate with epilepsy."

According to J. Arthur Buchanan[11] the relationship of epilepsy to migraine amounts to actual identity. He says that a biological character "is rendered physically immortal by heredity;" and, "essential epilepsy and migraine are the expressions of a biological character;" and, "essential epilepsy and migraine are transmitted from generation to generation as the expression of the same underlying factor in the germ plasm."

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I believe the foregoing clinical description of epilepsy, though brief, is fairly representative of the generally accepted conception of the disease. I believe also that Buchanan's painstaking researches entitle him to present, as he has done in the paper cited above, what is accepted as the biological aspect of epilepsy from the Mendelian standpoint. The clinical conception of epilepsy at which we have arrived extends all the way from major convulsions to chilblains, and is clearly not the conception of a disease but of a chaos of many diseases. Yet we call this chaos epilepsy quite as if the symptom groups comprising it were merely different manifestations of one essential thing.

From the Mendelian standpoint we have reached the conception of epilepsy as a biological character ineradicably fixed in the chromosomes of all the generations through which these chromosomes have descended. There is but a single step, which inexorable logic compels us to take, between either of these conceptions and the final absurdity that all mankind is epileptic.

The researches of Hughlings Jackson,[12] Hitzig,[13] Fritsch,[14] Ferrier,[15] Munk, Charcot,[16] Schaefer,[17] Beevor, and their coworkers and successors have taught us what we know of the functions of the cerebral cortex and what we know of the localization of its various functions in its various parts. From these researches and from an increasing mass of clinical observation and surgical experience we have learned that a given stimulus applied to a given part of the healthy cortex will produce a given sensory or motor reaction. Applied to a different part of the cortex it will produce a correspondingly different reaction. And if the stimulus be of suitable character and intensity it will produce a generalized convulsion that is in no way distinguishable from an epileptic convulsion—that, in fact, is an epileptic convulsion and is so called in the laboratories in which it is produced. The stimuli producing these reactions need not even be electrical. They may be mechanical, chemical, or even psychic. By the use of convulsants of the thujone and absinthe class typical fits can be produced at will in perfectly healthy animals—animals which exhibit no defect of neural structure.[18]

Every man, then, who is the possessor of a healthy brain is a potential epileptic, and if his brain be subjected, either experimentally or accidentally, to an appropriate stimulus, will become an actual epileptic.

Turning now to the hereditary aspect of epilepsy and assuming the soundness of the accepted conception of it as a biological character inherent in the immortal chromo-

somes of the epileptic, we are forced to the same conclusion. In the first generation back of us each of us had two ancestors, a father and a mother. In the second generation each of us had four. In the third, eight. In the tenth, one thousand and twenty-four. Assuming that the time interval between successive generations is approximately thirty years, there have been twenty-eight generations since the Norman conquest in 1066 A. D. By the very simple arithmetical process of raising the number two to its twenty-eighth power, we find that, barring intermarriage, each person now living had, at the time of the battle of Hastings, 268, 435, 456, ancestors from each one of whom he is directly descended. Knowing what we do of the incidence of epilepsy, we know that in any random group of this size there are thousands of unmistakable epileptics. We know further that there were not at the time of the Norman conquest, and have not been at any subsequent time, enough people on earth to provide so many distinct ancestors for each of us. Therefore, we know that the lines of descent have crossed and recrossed till all the people of one race have become literally the children of the same ancestors, and the heterozygous individuals along the way have had repeated opportunity to beget homozygous progeny, thus making it as certain as a probability can be that the immortal biological characters of our epileptic ancestors are in the chromosomes of each and every one of us.

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If the conclusion which we now seem to have reached from each of two avenues of approach appears absurd, the fault is not in the logical process by which it has been reached, but in the generally accepted conceptions from which it started. The "immortal" of the Mendelians is as unwarranted as the "unequivocal" of Sir William Gowers. What has become of the scales and fins of our Paleozoic ancestors? The fishes of the Devonian period were as homozygous, so far as these characters are concerned, as are any of the fishes of the present day; but in the mammalian descendants of these ancestors scales and fins have disappeared. They were not "immortal." No biological character is. Mendelism is no truer than Darwinism. Heredity is no more securely established than evolution; and thanks to evolution the scales and fins of our Devonian ancestors have disappeared in us, and lungs and digitated limbs—which they did not possess—have emerged. How long it may take epilepsy to go the way of gills, nobody knows.

The clinical conception of epilepsy as a pathological entity is as unsound as is the Mendelian conception of it as an immortal biological character. If we know anything whatever of reality, we know that under the same circumstances the same cause produces the same effect. When under the same circumstances we see such multiform effects as are the various clinical manifestations of epilepsy, I think we know that they are not the consequences of the same cause but of different causes. These causes are the pathological factors in what we call epilepsy. Many of them are discoverable and removable. In such cases the epilepsy is cured, and we say it is symptomatic epilepsy. In many other cases the causative factors, in the present state of knowledge, are either not discoverable or not removable, and in such cases we say the epilepsy is "essential" or "idiopathic." This distinction helps to define our ignorance, but is of no service in defining epilepsy. As S. A. K. Wilson[19] has said, "The epileptic fit is nothing else than a symptom; no such disease as epilepsy exists, or can possibly exist; even by resort to such epithets as 'essential' or 'idiopathic' epilepsy we in no sense add a term of differentiating quality."

In conclusion I venture to suggest that epilepsy as a whole is not a symptom but almost any symptom; that it is a chaos of symptom groups and physiological phenomena that have little relationship except in the fact that none of them can occur in a creature that is not endowed with a nervous system; and finally that from the practical standpoint of treatment, prognosis, and eugenics a diagnosis of epilepsy is meaningless and of no value, the only important

question being, "What is the matter with the patient?"

BIBLIOGRAPHY

[1]Plutarch's Lives. North's Translation.

[2]La Psychologie Morbide. Moreau. The Blot on the Brain. Ireland. Encyc. Britan. 11th Ed. Vol. XXI, pp. 288-289-290.

[3]Charles V. Paris. Mignet.

[4]Insanity of Genius. Nisbet.

[5]Encyc. Britan. 11th Ed., Vol. VIII, p. 439.

[6]Biographical Clinics. G. Gould.

[7]Gowers, W. R. Diseases Nerv. Syst, 2nd Ed., Vol. II, p. 756.

[8]Gowers, W. R. Diseases Nerv. Syst, 2nd Ed., Vol. 11, p. 746.

[9]Osler, Wm. Practice of Med., 8th. Ed., p. 1122.

[10]Osler, Wm. Practice of Med., 8th Ed., p. 628.

[11]Buchanan, J. Arthur. A Consideration of the Various Laws of Heredity and Their Application to Conditions in Man. American Journal of the Medical Sciences, May, 1928.

[12]Lancet. London, 1873, Vol. 1, pp. 84, 162, 232.

[13]Hitzig, Untersuch. ueber d. Gehirn. Berlin, 1874, S. 271. Ueber die electrische Erregbarkeit des Grosshirns. Arch. f. Anat., Physiol., u. vissensch. Med., 1870, S. 300.

[14]Vid ante.

[15]West Riding Lun. Asyl. Rep., London, 1873.

[16]Charcot et Pitres, Les centres moteurs corticaux chez l'homme. Paris, 1895.

[17]Journ. Physiol. Cambridge and London, Vol. VII.

[18]Macdonald, M. E., and Cobb, Stanley. Intracranial Pressure Changes During Experimental Convulsions. Jour. of Neurol. and Psychopathol. 1923-4, IV, 228.

[19]Wilson, Kinnier. The Epilepsies. Harveian Lectures. British Med. Jour. July 3, 1926.

MARRIAGE, DIVORCE AND THE DOCTOR

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The frequency of divorce can be easily exaggerated and no doubt it often is. The newspaper statistics derived by division of annual marriages by annual divorces are really meaningless, for as Frederick L. Hoffman[1] has pointed out the divorcees are representatives of the whole body of married people and not of the small number who happen to have been married in that same year. The proportion of divorced people to married people is actually less than 1 per cent in this country. It remains true that divorce is more common in the United States than in any other country in the world, with the possible exception of Russia; also that the divorce rate has been steadily increasing. It would be unwise to conclude from this that American marriages are less happy than those contracted elsewhere, or that marriage in this generation is less successful than in the past. We must be socially blind, however, if, with a half million broken marriages before us, we are still unaware of marital misery in our midst.

The ideal that we should set before us is not merely to reduce the divorce rate, but to make marriage so successful that nobody even wishes for divorce. That certainly is a much greater task and one that is proportionately more worth-while. Dr. Hoffman says that "divorce always spells failure in the most important choice of life, that of a mate." We cannot for a moment accept this verdict. The exercise of choice is certainly of very great importance, but the making of a successful marriage depends on much more than the initial choice; it presupposes a thorough knowledge of the technique of intimate sexual comradeship implemented by the force of a common social ideal. Granted these things, we would venture to predict that even a comparatively poor choice can be made into a highly successful marriage. It is admitted, however, that the choice itself may be so bad as to be fatal to success. This is particularly the case where physical and mental defects, discoverable only by medical examination, may exist without the knowledge of one or either of the parties most concerned.

The preventive medicine of divorce, then, consists in premarital advice not only on how to choose, but also on how to live with the chosen mate; supplemented by premarital medical examination, designed to exclude impossible partnerships and to safeguard others from unnecessary difficulties and pain.

Premarital Advice

At the age of twenty a young woman's chances of being alive and married at the end of five years are 50.3 per cent, a young man's chances at the same age are 41.1 per cent.[2] What are the chances that in those five years they will receive any serious instruction in the psychology or the physiology

of sex? Certainly they are less than 5 per cent. If these young men and women are lucky enough to be at college, they may receive instruction in the physiology of exercise, or in the physiology of nutrition, and almost certainly in the higher mathematics; but almost certainly not in the physiology of human reproduction. Yet the writer has abundant evidence that they are far more eager to study these vital subjects that are usually withheld than they are to study the subjects (not unimportant, but perhaps less important) for which grades are to be obtained. Many of these less popular subjects would take on a new interest if they were seen in closer relationship to the problems of marriage. Sellheim[3] writing recently from the medical viewpoint, has fully appreciated that advice given in regard to marriage must include a consideration of the wider problems of sociology. It is our experience that these sociological problems take on a new interest when they are approached through the more personal issues, such as How Shall I Choose a Mate, When Shall I Marry, At What Age Shall I Have Children, Is Birth Control Dysgenic? Such questions and many others like them spring up spontaneously wherever a group of young people meet to discuss the things that are nearest to their deeper interests. Any sociologist will recognize how closely they are allied to the problems of his own classroom. The crowded curriculum can profitably afford to find space for "pre-marital advice." It need not be called that. In our own teaching we have introduced the subject in two different classes: one for freshmen entitled "Mental and Social Hygiene," and the second for seniors named frankly, if rather poorly, "Sex Hygiene." The latter was the result of a demand for instruction without credit and was elected by almost the whole senior class. In passing, we may say that this was a mixed class. It is our experience that the frankest discussion on the highest ethical plane is only possible when both men and women are present. In groups restricted to either sex alone, there is always a tendency for pseudo-humorous vulgarity to raise its ugly head.

Religious institutions have a great opportunity of service in this field, an opportunity which is now beginning to be realized but, with the exception of the Y. W. C. A., is still largely neglected. Many of the social ideals of the growing generation are still centered about the church, and therefore instruction given under its auspices tends naturally to link itself with those social ideals which are so essential to its success. If the educational and religious institutions already in existence were to realize their present opportunities it is doubtful whether special institutions for sex and marriage advice, such as are now being advocated on the continent, would be necessary.

Advice on how to choose a mate must be given in the late teens or early twenties, when the problems to be faced will appear real and the student has sufficient background to be taught the impossibility of exercising free choice when once the arousal of a powerful instinct has fettered the judgment in its delectable bonds. The development of conscious and sub-conscious standards by which all possible mates are to be judged is not without its risks which must be explained and understood. The standard may be set so high that it may defeat its own purpose. As Leonard Darwin[4] puts it: "The conscientious would listen most to this call of duty and would thus more often be prevented from marrying." Fortunately the conscientious can also be made to see how undesirable such a result would be.

Instruction in the physiology of reproduction may be postponed to a somewhat more mature age, though it has been surprising to find how easily quite young students can absorb this teaching, in the present generation, without any emotional embarrassment. It is important that not only the function of the different generative organs be thoroughly understood, but also the function of the nervous system in courtship and its climax. Such teaching, it is obvious, can only be given by one who through marriage understands thoroughly what he is teaching. Ernst[5] has insisted that the teacher must be a physician. It has seemed to the present writer that there is a place here for physi-

cians who by training and temperament find themselves well equipped for the task and who are willing to devote a major part of their time to its fulfillment. The ultimate success of premarital advice depends, perhaps, as much on the atmosphere in which it is given as on the actual knowledge which is acquired. Such an atmosphere can best be maintained by one whose own personality is free from repressions and emotional bias.

Premarital Medical Examination

Adequate premarital advice will have made obvious the importance of a thorough medical examination before marriage. In explaining the heredity of the applicant, the excellent forms supplied by the Eugenics Record Office of the Carnegie Institution of Washington will be found a great help. The physical examination, including a search for venereal disease, should be at least as complete as that outlined in the forms of the American Medical Association. If the applicant has already made himself, or herself, acquainted in a group for premarital instruction, many of the personality traits will already be known to the examiner. He must assure himself especially regarding the presence of parental fixations, such as are discussed by Ernst in the article referred to above. The possibility of homosexuality must be excluded. Mental diseases and especially Dementia Praecox must be present to his mind. This is the opportunity for which Paul Popenoe was wishing when he wrote: "If sterilization is ever to have far-reaching influence in the mental hygiene program, it is clear that some means will have to be devised for finding and operating on many of these women before they first come to the hospitals."[6] Phobias should be tactfully expected and if present ruthlessly explored. It is better to undertake a long course of analysis, necessitating the postponement of marriage, than to gloss over an irrational fear which will ruin the marriage after it has been made. We were consulted recently by a man who had been married five years, but whose marriage had never been consummated. The arrangement had been made before marriage that immediately afterwards the bride should go to spend six months with her mother. After her return, in the first miserable days of attempted conjugal life, a physician had been consulted. He made an examination (much against the patient's wishes) and pronounced that there was nothing wrong with her; it was just a case of nerves. Even at that stage psychiatric intervention could have been undertaken with better hopes of success than today. The important examination of the female genital system has been ably outlined in a recent article by Dickinson[7] reprinted by the committee on maternal health.* The examination of the male genital organs is scarcely less important, but the justifiable limits of procedure have not yet been so clearly set. The premarital investigation of probable fertility is a subject hardly yet ready for discussion.

Physicians may be called upon to examine those who have received no previous instruction and advice. The choice of what to tell such people in the short time that is available is often a very difficult one to make. Fortunately there is a rapidly growing list of books which may be recommended or lent. This is a poor substitute for personal instruction, but better than ignorance. In case this method is adopted the precious time allowed to the physician can best be employed by giving specific advice that is suggested by what he has found in the examination together with such general advice as he knows to be absent in the recommended literature, particularly of the kind (most important to the normal life of all married people) that our present laws forbid us to put into print.

*Fifth Ave. at 103rd Street, New York City.

REFERENCES

[1]Hoffman, Frederick L.: Marriage and Divorce, Journ. of Social Hygiene 15:129 (March), 1929.

[2]Statistical Bulletin, Metropolitan Life Insurance Co., 10:7 (July), 1929.

[3]Sellheim, Hugo: Eheberatung, Zentralbl. f. Gyn., 52:666 (March 17), 1928.

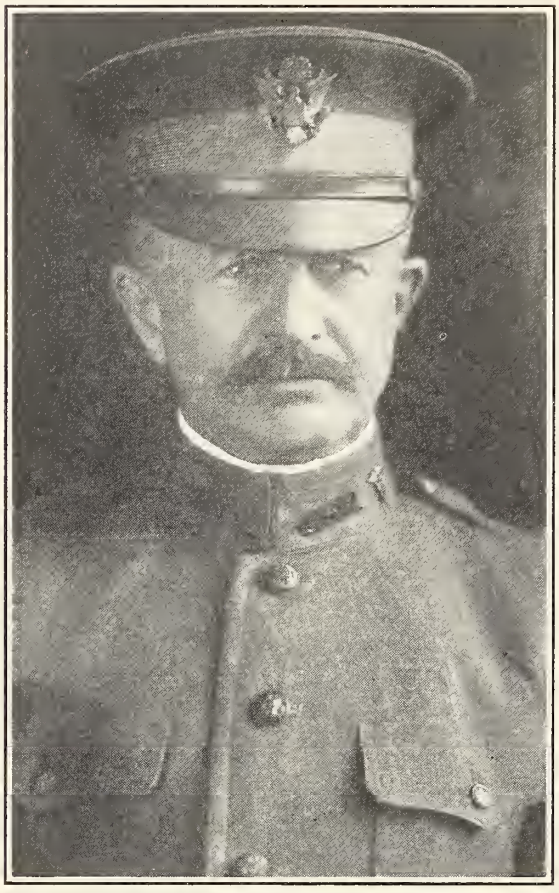
[4]Darwin, L.: The Need for Eugenic Reform, London, John Murray, 1926, p. 364.

[5]Ernst, John R.: Frequent Causes of Divorce from the Viewpoint of a Psychiatrist, Med. Journ. & Record, 129:263 (March 6,) 1929.

[6]Popenoe, Paul: Eugenic Sterilization in California, Journ. of Mental & Nervous Dis., 68:17, 1928.

[7]Dickinson, Robert L.: Premarital Examination as Routine Preventive Gynecology, Am. Journ. of Obst. & Gyn., 16:631 (Nov.), 1928.

In Memoriam



WALTER ADDISON JAYNE

Dr. Jayne was born in Orange, N. J., Dec. 4, 1853. He received his M.D. degree from the Physicians and Surgeons' (Columbia) in 1875. After practicing in the state of New York for several years he came to Colorado for health reasons, establishing himself in Georgetown in 1883, but coming to Denver in the early 90's. He was Professor of Gynecology and Abdominal Surgery in the Medical School of the University of Colorado, 1895-97, 1910-19, after which date he was made emeritus professor. He had also been a professor and trustee of the Denver and Gross Medical College.

He was an active member of the local, state and national associations, having rendered outstanding service as trustee and library director of the Denver County Society. He served his country in the World War, in which service he received the commission of lieutenant-colonel. He was the author of many articles on medical libraries and kindred subjects. His book, "Healing Gods of Ancient Civilization" (1925), has received wide and favorable notices.

Dr. Jayne died Aug. 29, 1929, after a short illness. So ran the course and so ended the life of one of the real noblemen of western medicine. We merely add the resolutions of some of his associates who knew him well.

Resolutions of Denver County Medical Society

Your committee, appointed to draft suitable resolutions on the death of Dr. Walter A. Jayne, submits the following:

Dr. Walter A. Jayne, a member of the Medical Society of the City and County of Denver for nearly forty years, passed away Aug. 29, 1929.

Those of us who have watched the growth of our Medical Societies, our Medical School, and our Medical Library for the period of a full generation recognize the predominant influence exerted by Dr. Jayne in their development.

Probably more than any other one of his contemporaries he has in various official capacities devoted time and great ability to the upbuilding of our local medical institutions.

The Medical Library has in recent years been the especial object of his loving care, and we are informed, was generously remembered in his will.

The Medical Society of the City and County of Denver, wishes to place on record this expression of love for a deceased colleague, and of the warmest admiration of the high character and the unselfish devotion to the highest ideals of our profession of Dr. Walter A. Jayne.

J. N. HALL, Chairman;
LEONARD FREEMAN,
ROBERT LEVY,
Committee.

NEWS NOTES

Dr. James Burgin, Delta, is recovering from a fractured collar bone, suffered in an accident August 25th when his automobile was crowded off the highway between Delta and Montrose. Miss June Musser, Delta nurse, accompanying him on a call, incurred a fractured arm.

Maj. Meridith R. Johnston, U. S. M. C., member of the Fitzsimon's General Hospital staff for two years, has been ordered to duty in the canal zone. Dr. Johnston and his wife will leave Denver early in the winter.

Lieut. John W. Erickson, U. S. Medical Administrative Corps, on duty at La Junta, Colo., has been ordered to report for duty October 27th at Fitzsimon's Hospital.

Dr. H. A. Smith, Delta, was the principal speaker at the final August meeting of the Delta Rotary Club, his subject being "The Cost of Medical Service." Dr. Smith explained in detail to the lay audience the work of the American Medical Association in pushing a study of the cost of medical care.

A course in infant and child mental hygiene will be given for parents in Boulder, Colo., throughout the school year this season by Dr. Franklin G. Ebaugh, director of the Colorado Psychopathic Hospital, and professor of psychiatry at the University Medical School.

Dr. W. K. Reed presented a paper on "Fractures of the Humerus," and Dr. H. R. Dietmeier presented one on "Fractures of the Femur" at the September 12th meeting of the Boulder County Medical Society in the Boulderado Hotel.

State Senator Charles R. Horn, Pueblo, was elected chairman of the legislative committee for investigating tuberculosis conditions in Colorado, when the committee met recently to organize in the office of Dr. S. R. McKelvey, secretary of the State Board of Health. Legislators in charge of branches of the survey were named as follows: Rep. C. Edgar Kettering, Denver, legal procedure; Rep. Emory J. Brady, Colorado Springs, institutions; Rep. Dr. W. H. Twining, Aspen, case finding; Sen. Roy A. Davis, Colorado Springs, cost of

care. All agencies in the state dealing with tuberculosis will be asked to co-operate with the committee in its work. The committee is expected to present a complete report to the next General Assembly in January, 1931.

Dr. C. V. Marmaduke, physician for the Colorado Fuel & Iron Company at the Minnequa plant dispensary for the last thirty-four years, will retire January 1, 1930. He joined the company early in 1896.

Jesus Sanchez, Mexican citizen, was arrested September 10th in La Junta, charged with practicing medicine without a license. He was held in default of $500 bond pending trial. Officers alleged Sanchez had received large sums of money from Mexicans and Spanish-Americans for giving service as a physician.

Dr. G. M. Gafford, Cheyenne Wells, director of the Parker Hospital, was taken to the Mayo Clinic at Rochester, Minn., September 10th, for a kidney examination. Dr. Gafford had been ill but a few days. He is a member of the Medical Society of the City and County of Denver.

Dr. John S. Chase, Denver, medical examiner for the aviation branch of the Department of Commerce and member of the Colorado Aeronautic Commission, has completed a pilot's training course and recently made his first "solo" flight at the Colorado Airways field.

Two Walsenburg physicians recently were victimized by narcotic fiends, and doctors of the Walsenburg district have been warned to keep their offices and automobiles well locked. The office of Dr. J. F. Baca was burglarized and all of his equipment ransacked. Dr. Paul G. Mathews found that thieves had stolen his bag from his automobile while it was parked in front of his office. A number of other physicians in Walsenburg have reported mysterious telephone calls from persons apparently seeking narcotics.

THE GREELEY MEETING VIEWED FROM THE SIDE-LINES

It was a great convention. To say this may seem quite "conventional," but it is none the less true. The program committee, the various committees on local arrangements, are all to be most heartily congratulated in bringing to pass a wonderful and epochal gathering. It is not our purpose, however, to attempt an exhaustive or exhausting summary of the program. Others more competent will doubtless make such an attempt; but we wish to merely record a few impressions and point a few morals.

First of all, let us congratulate Dr. O. M. Gilbert of Boulder that he has finally come into his own. At last he has received just and merited recognition for all his sterling qualities. Without a dissenting voice he was the unanimous choice to receive the golf beauty prize. However, we feel it is only proper that in the future, when the beauty prize is awarded, the recipient should be required to appear in his bathing-suit. This is according to modern form and usage.

Judging from the number of prizes going to our metropolitan members, we feel safe in asserting that as doctors, the Denver members are very good golfers. It merely indicates how proficient one may become when devoting all his time to one specialty.

The cowboy hats that graced the "domes" of the Wednesday night banqueters added a vivid wild west touch to the scene. The appearance in these hats on some of the highly dignified members of the profession would convince any hard-boiled anti-evolutionist that Darwin's hypothesis was at least plausible.

The food and service at the banquet were both excellent. The viands were well cooked, toothsome and tempting. But then what else would you expect when the "Angells" had prepared it?

Our main difficulty lay in the fact that we could not hear the speakers. In this day when one needs merely to turn a knob and modulate the volume of the radio program to any desired loudness, it is decidedly distressing to sit within forty feet of the speaker's table and strain one's ears to catch only a half or a third of what was being said. The Jubilee Singers gave a varied and delightful program, most of which was audible because they sang from a well elevated platform. The speakers, however, labored at a great disadvantage. They tried to be "on the level" with their audience and found it a difficult task. We fixed our face for a good laugh when Dr. Gerald B. Webb was telling some of his funny French stories. Then, right at the crucial moment, a sentence would be inaudible, and—our face would have to assume its usual blank expression. It was as if you had a nice juicy bit of roast turkey half way to your mouth when somebody thoughtfully hits your elbow. Dr. Henry Sewall's speech was largely inaudible. We got an occasional word: "Protoplasm, cell, fission, brain." Just disjointed words that might for the moment receive emphasis. We believe Dr. Sewall to be an able man. No doubt he "knows his onions"; but why should he serve up onions to us when we had just been eating ice cream and cake? We were not prepared for such "strong" diet.

Aside from Dr. Madler and Dr. Woodcock, who spoke but briefly, the only speaker who was entirely audible throughout his delightful remarks was the toastmaster, Dr. Elder. This may have been due to "the odor of magnolia blossoms on his breath." P. S. Perhaps it was the fruit salad. 2nd P. S. Perhaps it was not.

At any rate, would it not be well for future committees to secure a megaphone or an amplifier so that the fruit salad (?) may not have to work so hard?

We overheard Dr. Earl Whedon say that the next annual meeting for Wyoming is to be held in Sheridan. He spoke in glowing terms of the tri-state convention held last year in the Yellowstone. It occurred to the writer that year after next we might have a Colorado-Wyoming meeting at Cheyenne or some other point in no-man's-land. We have been co-operating very nicely in our state medical magazines. Why not in our state Society meetings? All those in favor, say "aye!" Yes, and say it loudly enough so that the committee may hear and heed. Take a little fruit salad if necessary.

AZA Z. HALL, M.D.

MEETING OF THE AMERICAN COLLEGE OF SURGEONS

The American College of Surgeons will hold its nineteenth annual Clinical Congress in Chicago, October 14-18. Headquarters will be at the Stevens Hotel. An intensive program is being planned to make this home-coming event the greatest in the history of the college. The hospital standardization conference will consist of morning and afternoon sessions on Monday to Thursday, inclusive. There will be a series of clinical demonstrations given by: George W. Crile, Cleveland; John B. Deaver, Philadelphia; John M. T. Finney, Baltimore; Charles H. Mayo, Rochester, and others. Monday evening's program will include an address of welcome by the chairman of the Chicago

Committee on Arrangements, Dr. Herman L. Kretschmer, the address of the retiring president, Dr. Franklin H. Martin, Chicago; the inaugural address of the new president, Major-General Merritte W. Ireland, Washington, D. C., and the John B. Murphy Oration in Surgery by Professor D. P. D. Wilkie of Edinburgh. Among the foreign visitors will be: Dr. James Heyman of Stockholm, Dr. Thierry de Martel of Paris, Visconte Aguilar of Madrid, and Mr. Herbert Tilley of London. Tuesday, Wednesday and Thursday evening sessions will consist of scientific papers presented by surgeons from the United States, Canada and from abroad. The annual convocation of the college will be held on Friday evening. The fellowship address will be delivered by Dr. Glenn Frank, president of the University of Wisconsin. The annual meeting of the governors and fellows will be held Thursday afternoon, followed by a symposia on cancer and bone sarcoma. An all-day session on Traumatic Surgery will be held on Friday in which leaders in industry, labor, indemnity organizations and the medical profession will participate. A special program has been arranged that will be of interest to those whose practice is limited to surgery of the eye, ear, nose and throat. A feature of the Congress will be the showing of surgical films that have been produced under the supervision and approved by the Board on Medical Motion Pictures of the college. New developments in color photography will be demonstrated. In addition to the commercial exhibits, there will be scientific exhibits by the departments of the college. A rate of one and one-half the regular one-way fare has been granted on railroads of the United States and Canada to those holding convention certificates.

MEDICAL SOCIETIES

DELTA COUNTY

The regular meeting of the Delta County Medical Society was held at Dr. A. C. McClanahan's ranch on Friday evening, August 30th, at 6:30. A Dutch lunch was served and thoroughly enjoyed for a change. Members present were Drs. C. H. Burgin, Cleland, Day, Erich, L. A. Hick, L. L. Hick, McArthur, McClanahan and Smith.

Under the head of new business the subject was discussed concerning the recent trouble in Grand Junction when a Mexican forced a physician, at the point of a gun, to attend his wife. As we understand it the Mexican could not have any action brought against him. We wish an opinion on this from the State Society as we have many Mexicans in our community and a similar incident may occur here.

Just as the paper of the evening was to be read four of the members were called away to attend obstetrical cases, so a motion was made, seconded, and carried to dispense with the paper and have a poker game, much to Dr. Erich's regret.

LAWRENCE L. HISK,
Secretary.

WOMAN'S AUXILIARY

At the Colorado State Medical Society annual session in Greeley, the Woman's Auxiliary activities, presided over by the Weld County Medical Society Auxiliary, added a large share to the successful meeting just passed into history.

Splendid co-operation was shown in the wonderful program prepared for visiting members and guests, together with a spirit of cordial friendliness and most generous hospitality. Social functions contributed continuous entertainment, beginning with an attractive campus box-luncheon. The Woman's Club House, artistically decorated, was the scene of a lovely musicale and tea, followed the same evening by the president's reception and dance.

Wednesday a bridge luncheon at the Greeley Country Club, and the marvelous subscription dinner with its many surprise features, gave a finishing touch to an outstanding occasion. Numerous informal events, including golf, tennis, swimming and drives, covered every expectation of diversion and amusement.

Ninety-five members of the Woman's Auxiliary registered, and Wednesday's business meeting, with Mrs. George W. Miel, president, presiding, was well attended. Preceding reports, Mr. Harvey T. Sethman, executive secretary of the Colorado State Medical Society, briefly related the attitude of officers of other medical societies toward auxiliaries, a large majority approving affiliation if for no other reason than furthering friendly association among physicians' families. Mrs. J. A. McCaw, delegate to the Woman's Auxiliary of the American Medical Association, gave an interesting account of the meeting at Portland, Ore., and its attendant social functions. All reports were read and accepted. Appropriations for benevolent purposes were passed and will carry cheer to those less fortunate than ourselves, closing a year with some worth-while object accomplished.

Following are the new officers:

President, Mrs. F. M. Heller, Pueblo.

President-elect, Mrs. R. G. Smith, Denver.

First Vice President, Mrs. E. W. Knowles, Greeley.

Second Vice President, Mrs. G. H. Curfman, Salida.

Third Vice President, Mrs. R. S. Johnston, La Junta.

Fourth Vice President, Mrs. C. O. Geise, Colorado Springs.

Treasurer, Mrs. G. M. Myers, Pueblo.

Recording Secretary, Mrs. H. A. LaMoure, Pueblo.

Auditor, Mrs. H. T. Low, Pueblo.

Parliamentarian, Mrs. C. H. Morian, Denver.

Chairman of Organization, Mrs. J. B. Crouch, Colorado Springs.

Chairman of Education and Hygeia, Mrs. R. W. Arndt, Denver.

Chairman of Publicity, Mrs. G. W. Miel, Denver.

MRS. G. W. M.

CORRESPONDENCE

Denver, Colo., Sept. 3, 1929.

My Dear Dr. Kemper:

In my mail this morning I received a clipping from the September number of "Colorado Medicine," entitled "Hauser in Colorado." This may have come from your office, but no name is attached, and I am glad to send this word of explanation.

Mr. Hauser rented our church for the series of lectures to which you refer, but this did not imply the slightest endorsement of him or his lectures either by the church or the pastor.

I am sorry if Mr. Hauser turns out to be different from that which he represented himself to be, and I am especially sorry if his appearance here was an offense to the medical profession of the city or state.

This clipping also says you have in your possession a letter upon our church stationery and signed by me. This has reference to the Tuberclecide Company, at one time located in the Patterson Building in this city. I am glad to acknowledge that I was apparently misled by this company, but it came about in a perfectly innocent way. Certain people of my congregation thought they had derived much benefit from this treatment, and prevailed upon me to make an anonymous reference to it in a broadcasting service. This brought to me letters from sick folk; and in replying to their letters I referred them to this company. The letter you have in hand is an illustration.

I am sorry to have been misled in this way or to have given any endorsement to this company, and shall endeavor in the future to be more cautious. Meantime, I shall be glad if you will give to this letter the same publicity you have given to my former letter, and thus permit me to set myself right in respect of these matters.

A. H. C. MORSE,
Pastor First Baptist Church, Denver.

(The above letter is self-explanatory. We cannot agree that churches do not have some responsibility in the matter mentioned above. Such aid to selfish or immoral persons who seek their own ends without regard to the social harm they do, certainly cannot be justified on either moral or scientific grounds.—Ed.)

BOOK REVIEWS

A Text-Book of Pathology. By William G. MacCallum, M.D., Professor of Pathology and Bacteriology. Johns Hopkins University. Fourth Edition, thoroughly revised. Octavo volume of 1,177 pages with 606 original illustrations. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $10.00 net.

The fourth edition of MacCallum's follows the general plan of previous editions in its effort to serve as a text-book for students of pathology rather than a reference work. The latter side, however, is not entirely neglected as the copious index will facilitate consultation on any desired subject matter.

In this edition, the newer findings and researches in the various subjects have been incorporated, necessitating a re-writing of the chapters in whole or in part.

Subjects which are not quite germane to pathological anatomy, but included in other text-books, have properly been omitted or abbreviated.

The book will continue to be a favorite with the student and medical public.

PHILIP HILLKOWITZ.

Neurological Examination. An Exposition of Tests with Interpretation of Signs and Symptoms. By Charles A. McKendree, M.D., Associate, Department of Neurology, College of Physicians and Surgeons, Columbia University. With a foreword by Henry Alsop Riley, M.D. 12 mo. of 280 pages with 88 illustrations. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $3.25 net.

While method and system are necessary in all medical examinations, this applies especially to the field of neurology. The present volume presents a most valuable and complete scheme of examination. The method is that which has been in use for several years in the College of Physicians and Surgeons, Columbia University and the Vanderbilt Clinic, New York City.

While the book is a guide to examination, it is almost a text-book of neurology in that as the author says in the preface "The abnormal reactions are interpreted as pertinent pathological expressions of interference with anatomical relations and physiological functions, in such a way as to give to the student clinical pictures of pathology which he may readily understand and group under various syndromes."

This book is complete, up-to-date, thoroughly illustrated and should be a valuable addition to the library of any physician.

CYRUS L. PERSHING, M.D.

Rene Theophile Hyacinthe Laennec, A memoir. By Gerald B. Webb, M.D., President, Colorado School of Tuberculosis, Colorado Springs; U. S. Government Delegate to the Laënnec Centenary, Paris, December, 1926. 13 full page plates. Paul B. Hoeber, Inc., New York, 1928. Price, $2.00.

The Coloradoan who reviews Dr. Webb's book will find his interest divided. His mind will be diverted now and then from the episodes in the life of Laënnec to the style and temper of the author. Somewhere in the book, speaking of the writings of Laënnec, the author says, "He wrote simply, clearly and truthfully." Dr. Webb probably noticed these qualities because he admired them and because of this admiration, too, he has made them his own. He writes simply without ornament, clearly without complexity and truthfully because he has diligently studied Laënnec's life and wishes to convey its story to the present generation. He has been a pilgrim to Laënnec's birthplace and to his tomb. He has visited the countryside where the boy Théophile hunted and gathered birds' eggs and flowers and saw it "Adorned with hedges of broom and gorse which divide fields, gay with cowslips, buttercups and daisies" as they were a century ago.

Dr. Webb is a realist. He tells a straight forward story of a great life. He never pauses to draw inferences about heredity or environment or to analyze states of mind. Here are the events. The reader may use them as he will. The author disdains to indulge in alluring theories. Uninterrupted as the story of Laënnec seems, Dr. Webb allows himself very short excursions into the lives of other men. Sometimes the reader will feel that these delightful digressions are too brief. The boy, Laënnec, gathered pebbles, insects and plants. Such, too, were the youthful indulgences of Jenner Koch and Lister. For a time Laënnec practiced on the flute six hours daily. This reminds the author of another physician, Oliver Goldsmith, who traveled through Europe, set the peasants dancing with the strains of his flute and was rewarded, now and then with a much needed meal.

Studies of nature brightened the boyhood of Osler so like Laënnec in other respects "As physicians both devoted their energies to pathological anatomy in search of truth. These two famous physicians made exact observations and were averse to speculation. To each medical history was of the greatest importance and with it they illuminated their excellent lectures and treatises. While Laënnec immortalized himself by anatomical studies, especially in tuberculosis, and in clinical writings and the invention of the stethoscope,

Osler led in the elimination of tuberculosis and early suggested the binaural instrument."

One could easily believe that the spirit of the greatest biographer, Plutarch, had fallen upon Gerald Webb in the days of his youth and abides with him still. How that ancient writer loved to compare and contrast his characters. Who could easily forget the alleged bribery of Demosthenes and the untarnished character of Cicero; the modesty of the one, the boastings of the other; the austerity of theorations of the Greek, the occasional mirth in the speeches of the Roman.

One hundred years before Laënnec was born a great Englishman, Sydenham, became disgusted with theories of disease. He believed the way to study disease was to observe it and not speculate about its nature. His plan brought quick and rich results. Laënnec and the school to which he belonged carried the teaching of Sydenham farther. They did post-mortem examinations and made note of the changes in the body as well as the outward manifestation of those changes. They taught that tubercle was the specific lesion of tuberculosis.

Against this teaching Brussaise raised his loud and ill-tempered voice. He believed that disease in any of its forms was but a sign of internal irritation. The debate was long and, on the side of Broussaise, furious. No writer would show good taste in searching for similarity in such antagonistic forces. They must be made to stand in antithetical positions, so we read.

"The two were antitheses: one was tall, muscular, ebullient; the other (Laënnec) short, valetudinarian, reserved. One fought passionately for an error; the other dispassionately for the truth; the one who was wrong had the medical world with him; the one who was right stood almost alone." Could anything be more Plutarchian?

If anyone's knowledge of Laënnec is limited to the fact that he discovered the stethescope, he would do well to read Dr. Webb's book. The invention of the stethescope is but a trifling display of mechanical ingenuity. Laënnec did more. He used the stethescope. He described the sounds heard, gave them the names we still use and knew the pathologic changes which caused pathologic sounds. Though this was his chief work, it was by no means all of it.

One who has contributed little or nothing to medicine can find solace in the thought that, as our mountain prospectors, some men find rich veins of ore which they develop with relentless energy. Others with keen eyes and eager hands explore valleys and climb precipices in vain. Pasteur's researches in fermentation led him on into bacteriology always dominated by a single thought which he could prove with a single experiment. Laënnec sought within the body those changes we must recognize by their outward signs.

There are parts of this story of Laënnec which jog one's emotions. One will be affected by the thought of the boy starting from Nantes to Paris to study medicine. He goes afoot. There is a bundle of a few cheap clothes in his hand. The journey requires ten days. Before him is the city of hope with its great teachers and great hospitals, but behind him is that uncle who had loved him as few men could love a nephew; who had supported him when his own father was delinquent; who had guided him with unfaltering wisdom. Can it be doubted that the boy lingered to look back upon Nantes with its diminishing church spires, dim and blue in the distant haze and blots them out entirely with a flood of tears? Onward! Onward! brave lad, the world is yet to hear from you. One hundred years from now on the high and distant plateau of Colorado a scholar will sit among his beloved volumes and write your story. The book is small and light in its physical proportions. It fills the sense like a perfume or a melody.

C. S. ELDER.

Pediatrics for the General Practitioner. By Harry Monroe McClanahan, A.M., M.D., Professor of Pediatrics Emeritus, University of Nebraska, Member of the American Pediatric Society, ex-President of the Nebraska State Medical Association. 230 Illustrations. Philadelphia and London: J. P. Lippincott Company.

Dr. McClanahan is the pioneer pediatrist west of the Mississippi with thirty-eight years' experience. He presents his treatise for students and general practitioners as he would give his kindly medical advice to friends. The contents give simple reading not burdened by tiresome statistics and conflicting theories. The illustrations are mostly new, clear and accompaniel by much explanatory data.

The arrangement of the work is unique. It is presented in age periods with their normal development, most frequent diseases attendant with diagnosis and treatment for each period. The section on contagious diseases is particularly well presented.

WILFORD W. BARBER.

Proctology. A Treatise on the Malformations, Injuries and Diseases of the Rectum, Anus and Pelvic Colon. By Frank C. Yeomans, A.B., M.D., F. A. C. S., Professor of Proctology, New York Polyclinic Medical School; Fellow and Past President, American Proctologic Society; Attending Surgeon, New York Polyclinic Hospital, and New York City Cancer Institute; Proctologist, the New York Hospital. With 417 Illustrations and 4 Colored Plates. D. Appleton and Company: New York and London. 1929.

This volume, which should be in the office of every physician, whether a specialist or general practitioner, is one of the very best. Dr. Yeomans' new book on Proctology is very comprehensive, setting forth in a clear, concise manner the many conditions affecting the rectum and colon. There is no need to read between the lines to get at the author's real meaning. While there are many standard illustrations in this volume, it also contains some original cuts which are very helpful in the diagnosis and treatment of rectal diseases. Having personal acquaintance with Dr. Yeomans, I can vouch for his excellence in the art of teaching. I consider him one of the best instructors, and find in reviewing his book that his personality and nice way of teaching continues in print. I earnestly recommend this book to every physician and surgeon.

ATWATER DOUGLASS.

School Children and Heart Disease

Ninety children out of 10,000 examined were found to have organic heart disease during a survey of heart conditions among public school children recently conducted in Philadelphia, according to the supervisor of medical inspection of public schools of that city. The younger children showed slightly less disease than the older, and the boys slightly less than the girls. Heart disease is reported to be increasing among children from 10 to 14 years of age, and to be the principal cause of death during that age period.—Children's Bureau.

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EDITORIAL NOTES AND COMMENT

THE FRED W. PHIFER SUIT

No suit for alleged mal-practice has stirred up the doctors of Wyoming in recent years as this one for $114,275.00, started by an ungrateful patient.

The charges brought, and on which the suit rests, are unbelievable. There is not a sane man in Wyoming who would for one minute believe that Dr. Phifer would keep a patient under an anesthetic such as ether for five (5) hours. That kind of "Yellow Journalism" won't be believed by Wyoming people and as to ether burning up the patient's lung, that is rot, we know. Why did it not effect the other lung?

The medical profession of Wyoming is with Dr. Phifer to the last man, and the State Medical Defense Committee after most carefully going over all the facts at its command have voted unanimously to support Dr. Phifer in this case. Of all the unfair cases ever started in Wyoming, this is the rawest and most nauseating, and we believe that although it does cause Dr. Phifer expense and annoyance, in the end he will be shown to have used the greatest skill, and in place of a dirty suit, the patient should be praising him and his hospital for a spared life which he owes to the skill and care given by the man he now seeks to besmirch.

E. W.

THE GREELEY MEETING OF THE COLORADO STATE MEDICAL SOCIETY

The members of the Wyoming State Medical Society were given a cordial invitation to attend the 59th annual session of the Colorado State Medical Society held at Greeley, Colorado, September 4, 5 and 6, by the Colorado Medical Society. Several of the members attended, and many more would have been present had it not been for the storm of September 4-6, which was one of the earliest snow storms on record in Wyoming and Colorado.

The writer drove 430 miles Tuesday through the rain to attend and returned Thursday to meet a snow storm part way home.

To an outsider, it was most interesting, and we only wish all the Wyoming physicians could have enjoyed the meeting. There was such a cordial atmosphere, interesting papers, good exhibits, and most honest and free discussions. To me, the meeting stood out for its discussions, not that the papers were not of the highest order, but the writers had the happy faculty of bringing out fine discussions following the presentations of the papers.

We did not arrive in Greeley in time to hear Dr. C. E. Tennant's paper, "Exploration and Certain Operations on the Female Pelvis Through Cholecystectomey Incisions," nor that of Dr. J. A. Matlack on "Uterine Dysfunction in Middle Age," nor Dr. H. E. Robertson's on "Consideration of Some of the Newer Aspects of Carcinoma."

Arriving through the rain at 7:30 we were privileged to again see and hear explained Dr. Canti's film shown at the Portland meeting of the A. M. A.

Dr. Florence Sabin of the Rockefeller Institute for Medical Research, explained this interesting film showing the growth of living cells, both normal and those of cancer

tissue, both before and after treatment by radium.

At the woman's club house on the college campus the president's reception and dance was held which was largely attended. Here we met many of our old friends of boyhood days, teachers and classmates of old Gross College and many friends from Colorado and Wyoming.

Tuesday's program was so crowded that part of the papers had to be carried over to Wednesday.

Wednesday morning the first paper was by Dr. Harry Whitaker, "Lipiodol; Its Place in the Modern Diagnosis of Sinus Pathology," was a clear-cut paper showing the value of the use of lipiodol in sinus x-ray pictures of these cavities, and certainly the note of conservative surgery was the outstanding feature. This paper was fully discussed and of great interest to all, but more especially to the nose and throat specialists of whom there was a large attendance. The next paper by Dr. John Berton Carnett, of Philadelphia, professor of surgery of the University of Pennsylvania, on "The Differentiation of Interabdominal Lesions from Intercostal Neuralgia of the Abdominal Wall," was the outstanding paper of the meeting. The paper was open to the criticism that it was too long and there were many places where the same ideas were repeated, but the subject was presented in a forceful and scholarly manner, and coming from a man of Dr. Carnett's ability, no one could doubt the sincerity and honesty of its author. Probably no paper was so freely discussed, and the outspoken and frank criticism was the most outstanding of any paper presented. But after all was said there remained the fact that a most timely warning had been sounded for a better diagnosis of abdominal pains, and if 10 per cent of what Professor Carnett said was true, then every physician and surgeon has something to learn and forever remember.

Dr. T. Mitchell Burns of Denver presented in a very clear way "The Newer Physiology of Reproduction," dividing the subject into distinct periods, and the paper certainly showed the painstaking work of the author, who was my old teacher in Gross College on the subject of obstetrics, and so we might go on with the program, but in the future issues of Colorado Medicine, you will all have the opportunity to get the good things offered at Greeley.

The exhibits were not as extensive as those at the Colorado Springs meeting of two years ago, but they were very good. The Weld County Medical Society certainly made every effort to entertain the state meeting, and with such a small membership, its record was splendid. The annual banquet was largely attended and greatly enjoyed. The Weld County Medical Society presented as favors large farmer straw hats to all who attended. Those hats so changed the appearance of the members that we had great difficulty in recognizing the faces of old friends. Dr. C. S. Elder acted as toastmaster, and due to the poor acoustics, most speakers could not be heard over the hall. The singing by the colored entertainers was exceptionally good. We had a good time, and although the storm tied up many who had planned to attend from Wyoming, those who were present felt well repaid for their trip, even if they did have to fight snow and rain on their return trip.

NEWS NOTES

Dr. A. L. Darche of Chicago, Ill., has accepted the position of assistant physician at the Wyoming State Hospital at Evanston, Wyo. He began his work July 1st. Dr. Darche is a graduate of the Chicago College of Medicine and Surgery and has an extended experience in neuro-psychiatry. For the past seven years he has filled important positions in the state institutions of Illinois and comes to Wyoming with a most commendable record.

Dr. E. L. Jewell, president-elect of the Wyoming State Medical Society, attended the Greeley meeting of the Colorado State Medical Society. Dr. Jewell has had a great many years' experience in handling tick fever and we all feel that it was unfortunate that he had to be called home before he was given an opportunity to discuss its treatment.

The following Cheyenne doctors were present at the Greeley meeting: Dr. G. M. Anderson, Dr. George Beck, Dr. George Strader.

Bruce Dennison, son of E. G. Dennison of Sheridan, is leaving to attend Babson College at Hollywood, Calif.

Dr. E. S. Lauzer is spending a two weeks' vacation in California and Dr. A. H. Sanders is taking care of his practice while he is gone.

Dr. C. O. Larson is locating in Superior, Wyo., coming there from Kemmerer, Wyo.

Dr. J. H. Goodnough attended the Colorado State Medical meeting at Greeley, Colo.

ON THE IMPORTANCE OF THE FUNDAMENTAL DIAGNOSTIC METHODS IN MEDICINE*

W. S. THAYER, M.D.
BALTIMORE, MD.

Modern clinical diagnosis may be said to have been born at the end of the 18th and the beginning of the 19th century. 'Twas only in 1761 that Leopold Auenbrugger published his "**Inventum Novum**", in which he laid the basis of the art of percussion—only in 1808 that Corvisart brought before the world this simple procedure, which made it possible to detect with finger and ear the variations in density of the lungs or in the contents of the thoracic cavity, and to a certain extent to outline thoracic and abdominal viscera. And it was but very little over one hundred years ago that the frail and spirited little Breton introduced the art of auscultation and, by correlation of his effective methods of physical exploration with acute anatomical studies, created modern clinical medicine.

Through the practice of these simple methods of physical diagnosis with our increased knowledge of gross pathological anatomy based on the studies of Andral, Louis, Bouillaud, Bright, Addison and others, it became possible to detect, and with considerable accuracy, by the use of our senses—aided only by the stethoscope, by the use of eyes, ears and fingers, most of the gross anatomical changes characterizing the important diseases of lungs, heart and abdomen. These methods of exploration remain today a necessary basis—the essential foundation on which we must build to acquire diagnostic skill. In order to become a decent

In order to become a decent diagnostician a certain necessary substructure is required.

(1) The physician must be a reasonably good gross pathologist. It is futile and impossible for one to attempt to recognize by means of physical examination structures and changes in organs with which he is so unfamiliar that he would not recognize them were they before his eyes.

(2) He must have acquired by experience, skill and confidence in the art of auscultation and percussion. This skill and this confidence can only be acquired by experience in correlating one's clinical observations with the anatomical conditions observed after death, and by following during life the changes in the physical appearances in the patients it has been given to us to observe.

(3) It goes almost without saying that real skill as a diagnostician comes only through experience in the practice of the art. No one can become a good diagnostician through the reading of books, through sitting in the classroom, through work in the laboratory alone.

(4) He must have a good training in anatomy and in the simpler methods of neurological diagnosis which require no elaborate mechanical procedures, but do require patience and accuracy.

Since the middle of the 19th century the advances in pathological anatomy and physiology, the development of our knowledge of bacteriology and of serology, the increasing application of physical and chemical and physiological methods to medical investigation, have greatly augmented our diagnostic resources. The power to recognize infections by cultures from the circulating blood, secreta or excreta, or by serological procedures, and our knowledge of immunity have become so much a matter of course to all of us that it is really startling to look back on the conditions when I was a student in the later eighties. In many ways 'tis a happy age for the patient today when compared with the conditions of forty years ago.

No one who has not practised in pre-Roentgen days can appreciate fully the blessed relief that an appeal to plate or fluoroscope in obscure thoracic or abdominal disease may bring—the satisfaction, melancholy some times, that modern procedures of functional diagnosis may bring, especially in diseases of the kidneys.

The increasing application of chemical and

*Read before the Tri-State Meeting, Yellowstone Park, Aug. 27, 1928.

physical methods to the art of diagnosis, the use of the electric light and endoscopy in all its forms and the delicacy of the procedures involved, have brought it about that more and more men and women are devoting themselves to special branches of applied science or technique as the case may be. It is utterly impossible for the active practitioner to do all his laboratory work. He must delegate it to others. It is quite impossible for the laboratary technician or student, who is doing routine work for others, to do much in the way of practice. That which he does for the practitioner is the carrying out of a careful piece of chemical or physical or bacteriological or serological work. As time goes on he acquires from experience and from literature a considerable skill in the interpretation of the results of his tests or his examinations or his plates. But no man can properly interpret many laboratory tests without considering them in their relations to the special individual from whom the specimens were taken. The practising physician, if he be not thoroughly familiar with his patient, may be sadly misled by a mere laboratory report.

To study or practise a specialty; to devote oneself to the study of special problems in any branch of medicine or the allied sciences, is a fascinating career; one which holds out often opportunity for contributions of the greatest value. That there should be men of special aptitudes or special abilities who devote themselves to these special studies, who acquire special skill in these varied branches of practice, to whom we may appeal in emergencies, is important for the public and for the profession. It is folly to discuss the dignity of this, that or the other form of study or practice. There is little difference between the dignity of any one of the careers to which a man devotes himself with his whole heart.

But this much I think one can say: Well to practise general medicine and surgery is the most difficult task before a medical man —and, though seemingly paradoxical, 'tis profoundly true that the practice of medicine has never been so difficult as it is today, and this is due precisely to the circumstance that our resources are so much greater. For although our resources are greater, though we have so many new procedures to help us out, there is not one which takes the place of the fundamental methods of observation, palpation, auscultation and percussion. To these the new methods are all complementary. Sergent has well said: "One sense may not be substituted for another. The senses are complementary." No one of our new methods of examination, physical or chemical, replaces the older fundamental procedures — they merely add to them.

He who is unable to use his eyes and hands and fingers and ears is quite unfit to profit by that which Roentgenology, serology and the newer functional methods of study may bring him. The physician must know enough to know when he needs his plates. Beyond certain simple routine procedures, such as the ordinary urinary examination— amount, colour, specific gravity, presence or absence of sugar or albumen—and perhaps a microscopic examination of the sediment— and a glance at a fresh specimen of blood through the microscope, with a simple haemoglobin examination on the Tallquist scale, he must know enough to know that for which he need appeal to the laboratory. And, always, he must consider his patient, for, pleasant and relieving as it may be to appeal to every possible method of study, the patient often can ill afford to pay for that which is absolutely necessary, and depends upon his physician to protect his pocket from unnecessary strain. He who does not recognize this duty toward his patient is dealing lightly with a responsibility of which he should be ever conscious.

Now there is a grave tendency in modern teaching toward the too-early emphasis— indeed I should say the over-emphasis—of newer diagnostic refinements **at the expense of the fundamentals.** This leads the student to feel that diagnostic aids, which are sometimes valuable complements to our ordinary method of examination, are **necessities,** and leads him to forget or to fail to realize that, under ordinary circumstances, such simple methods as those to which I have referred

above, give one a clear conception of the situation, or at least a lead so good that he may know in what directions he must look for further assistance.

Some twenty years ago Frederich Müller of Munich while visiting this country expressed to me, in a private conversation, his feeling that we were spending too much time with our under-graduates on refinements which belonged properly to post-graduate instruction; that we were neglecting somewhat the simpler aspects of physical diagnosis.

I well remember the emphasis with which he insisted on the circumstance that these fundamental methods were those on which we all depend in great part, and that the student's mind should not be led away with the idea that anything else could take their place.

Now these conditions in our schools of medicine are, I think, worse today. The multiplicity of the procedures by means of which we may study the manifestations of diseas on the one hand and the circumstance that in our educational system, the graded course in the medical school remains the same, has brought it about that in most schools it is difficult for the student to put the proper amount of time into the study and practice of the simpler procedures of physical diagnosis, and almost impossible for him to gain a true conception of the relative value of the multifarious diagnostic procedures of which he must learn in his overcrowded course.

In like manner, and to some extent as a result of this, in modern practice it is far too common to neglect or slur the simpler methods of physical examination which, in the great majority of instances, are sufficient to give us a reasonable conception of the situation, and are really necessary as a basis on which to work, and to appeal at the outset without proper observation or examination, to the laboratory or to a Roentgenologist: and worse than this, to accept the report as diagnostic without realizing that these examinations are complementary to and should be considered only in connexion with a thorough preliminary physical examination and consideration of the general situation.

In any scientific procedure, in all our human efforts toward the search for truth, the first essential is an open mind. One must observe and examine, and pass judgment only when sure that he has considered all available data. The accuracy of the "snap diagnosis" of the experienced may be impressive but a "snap diagnosis" is an abomination.

No man can afford to give an opinion save as the result of a systematic examination. Preconceived ideas, the inability to keep an open mind and to consider judiciously all available evidence before conclusion and action have ruined many careers.

Now there may be some remarkable men who can dispense with system in their examinations, and go directly to the point. Such men, if there be any, are rare exceptions. And such a procedure is radically wrong. If we assume that a man with a belly-ache has some intra abdominal focus of disease, and begin immediately, by an examination of the abdomen, we may find it very hard later to go back and consider. Many things beside intra-abdominal disease may cause abdominal pains—to mention only a few—spinal affections with involvement of posterior roots or disease of posterior root ganglia (Zoster), not infrequently with few if any cutaneous manifestations; locomotor ataxia; tuberculosis or neoplasm of the spine, angina, pleurisy (pneumonia). Few of us can afford to proceed other than by looking the patient over from head to foot in a routine manner at the outset and then asking ourselves what further information we need.

Few things are more misleading to the searcher for truth than the preconceived idea. There are few more impressive evidences of human frailty than the almost daily exhibition by our friends and acquaintances of the rapidity with which a preconceived idea, an hypothesis, becomes a conviction. We are amused at the phenomenon in others and we think ourselves immune, thereby manifesting our weakness and our childishness.

There is, curiously enough, a certain tendency to regard as definite and final the report from a clinical laboratory. 'Tis not only true that appeal is made to the laboratory too often before the proper collection of data that a good clinical history, inspection, palpation, percussion and auscultation may bring, but when the report is received, it is too often accepted blindly. For instance, a positive Widal test is regarded as indicative of typhoid fever. But a positive Widal test is not definite evidence of the existence of typhoid fever any more than a positive Bordet-Wassermann test is positive evidence of the existence of syphilis. Moreover one must remember that these tests are made by human beings who are, as we all are, subject to error. We can't escape the human element in patient or in the laboratory. We must be exceedingly careful who does our laboratory work, and we must always allow for human error. And above all we must make use of our information intelligently and in its relation to the individual case.

I remember well having been called by a good friend to consult with him over a case of "typhoid fever." The patient was a poor fellow with recurrent chills, intermittent and remittent fever, and drenching sweats. He was anaemic; the carotids throbbed; there was aortic insufficiency. On skin and mucous membranes there was a petechial eruption; the spleen was palpable. There was a well marked leucocytosis. Albumin and red blood corpuscles were found in the urine.

The health department had reported the Widal reaction as positive. My friend had not recognized the ulcerative endocarditis before his eyes.

The most embarrassing position in which I remember to have been put was in connection with the examination by a group of physicians of an individual in a position of great responsibility, in which a mistaken report on the number of cells in the spinal fluid led us into too hasty action which it was extremely difficult to retrace. Where one is dealing with a large city laboratory, one must always make allowance for the possibility of error. Where we can we should always refer our laboratory work to individuals on whom we know we can rely; and we should discuss the case wherever we can with our colleague—always when the results seem paradoxical.

I have already spoken of the great diagnostic aid of Roentgenology. For this very reason reliance is sometimes put upon the x-ray plate alone which leads to unfortunate results. In revealing the outlines of organs, the distribution and shape of areas of greater density in lungs or in the thoracic cavity, the outlines and movements of the viscera, focal changes in the visceral walls, the shadow cast by certain calculi or the outlines of clearer bodies in an opaque medium as in the Graham test, this study of lights and shadows has shed great light on many clinical problems; it adds much to that which we may detect by inspection, palpation, percussion and auscultation; in no way does it replace them. In revealing the size and shape of the aorta, the finer outlines of the cardiac shadow, and in indicating the position and outlines of areas of greater density in the deeper parts of the thoracic cavity, it is indispensable But invaluable as it may be, though it is there in light and shadow before our eyes, there is nothing absolute in an x-ray plate. It is a record of light and shadow, and its value depends on conditions into which the human element enters in the interpretation of these records of lights and shadows. A technician may acquire considerable skill in interpreting the significance of his plates. But properly to read a given plate one should be a trained and experienced clinician; he should be familiar with the history of the case, and, furthermore, he should, **himself**, have made a thorough and careful physical examination of the patient. It is not enough that this should have been done by another. The English language is quite insufficient to convey all the impressions gained by the senses in the examination of the heart and lungs. In other words, the physician himself must learn to read his plates and must see these plates and discuss the situation

with technician or Roentgenologist in most of his cases.

A Roentgenologist may describe shadows at the apices of the lungs, and tell us that they are so disposed as to suggest tuberculosis. He may give us his impression as to whether such changes are indicative of acute or chronic disease. But such a report is of value only from one who is a well-trained clinician and has followed the course of his cases or is familiar with the previous and subsequent history of many who have passed through his hands. To accept blindly the opinion of a Roentgenologist on the presence or absence of tuberculosis in a doubtful case, or his opinion in a given case on its activity or inactivity without a full consideration of the clinical history and physical signs is preposterous; not to communicate with him fully as to these matters is unfair to the patient and to him. The failure to do this, the tendency on the part of some to accept a report as final, leads some Roentgenologists and technicians to express their impressions in language the finality of which really misrepresents them.

I have recently seen a report from an individual calling himself a "cardiologist" who, mainly on the strength of an electrocardiogramme, expresses solemnly opinions which are so preposterous as to be almost comical were it not for the gravity of the question on which he is expressing unjustified convictions.

As a matter of fact—how many Roentgenologists are trained and experienced clinicians?

How many Roentgenologists have the opportunity or are able to avail themselves of the opportunity of following their patients to the necropsy room?

How often do we physicians neglect to see our plates and discuss them with our colleague, the Roentgenologist?

Roentgenology is of invaluable assistance to the practitioner—but like most other diagnostic improvements, it does not lessen, it increases his labours for it does not replace the fundamental procedures of physical diagnosis, and it does impose upon him the duty of learning to read his plates if he desires to profit by them as he should. If he does he will soon realize that while of great help, and occasionally, indeed not infrequently, revealing the unsuspected, radiology usually but amplifies the information which may be gained by a good physical examination. There is no greater consoler to the good physical diagnostician than Roentgenological confirmation, which soon shows him that, generally, he has detected or suspected all that the plate or the fluoroscope has shown and considerably more. Slighter displacements of trachea or heart, Skodaic resonance over a relaxed lung, the nasal voice sounds over an effusion, the many changes in the respiratory murmur — these are but a few of the most valuable aids to diagnosis of which the x-ray plate or the fluoroscope give no idea. The x-ray alone can rarely tell one where to insert the needle in case of fluid. Nay, more than this, rarely but occasionally the x-ray plate is definitely misleading as are those occasional and inexplicable cases in which a pneumonic solidification evident on physical examination, fails to cast the usual shadow, and in those other instances in which a few bands of adhesion may result in appearances at the pylorus which are, in the highest degree, suggestive of neoplasm.

It is after all a natural but a rather sad result of the discovery of this invaluable aid to diagnosis that some of us should not only accept as final the suggestions of the Roentgenologist made too often in the form of a diagnosis, but should also substitute these reports for a good physical examination, thus neglecting opportunities for information far more essential and far more valuable.

Let me mention the distressing and rather humiliating situation in France during the war. Here a very high percentage, 70 per cent, at one evacuation centre, of men returned to America with a diagnosis of pulmonary tuberculosis were found by Webb to show no signs of active pulmonary disease. Here the physicians on duty had failed properly to study their patients, and had accepted blindly the diagnosis of young and inexperienced Roentgenologists who had reached their conclusions from plates alone.

There are few diagnostic signs in medicine. To reach a diagnosis requires the careful exercise of our powers of reason. To exercise our reason intelligently we should proceed in an orderly manner. If we are happy enough to have Roentgenological assistance, we should seek it only after having gathered, through our own study, such details as an ordinary physical examination may give. Thus only may we proceed without preconceived ideas. If one begins the examination of the chest by looking at an x-ray plate, he will soon find himself seeking the explanation of what the plate may suggest to his mind, of trying to confirm a preconceived idea. He is no longer working with an open mind. I should far rather be in the hands of a good doctor in a distant rural community, skilled in those methods of physical examination which were ours in the '80s, without access to a modern laboratory or to the x-rays, than of him with every modern advantage, who, ill trained or inexperienced in the fundamental methods, relies upon the reports of tests and examinations delegated to others.

As I said at the outset, the practice of general medicine and surgery is the most difficult task before the doctor, and it has never been so difficult or so full of responsibility as today. Infinitely more satisfactory than forty years ago? Yes, but much more difficult. Then, one knew fairly well how far he could go in his diagnostic efforts. Those examinations on which he was obliged to base his reasoning were relatively few and simple. Now, when we find ourselves uncertain, we feel it our duty often to employ, so far as we can, every possible procedure which may throw light on the situation. But these are multifarious, and often very expensive. Where everything is possible, the physician, in most cases, must discriminate, so far as he can, between that which is **necessary** and that which is **desirable.** He is, in a sense, personally responsible to the patient for the choice of the colleague or technician to whom he appeals for assistance, and he must himself consider the results, and, in many instances, confer with his colleagues as to their interpretation.

Greater accuracy in diagnosis, like most other things that are worth while in this life, is to be attained only through harder work.

We all long for diagnostic signs and short cuts in medicine. But one can almost say: "There ain't no such thing!" There are few diagnostic signs in medicine, and few short cuts.

It is good to have lived to see the great augmentation of our diagnostic and therapeutic abilities that has occurred during the last forty years.

It is very stimulating to look forward to those further advances which we all must feel are so near.

It is fascinating to struggle with the complications of the hour, and to seek that simplification of the complicated and time-taking diagnostic procedures which we hope may, one day, come.

But as one who has been unusually fortunate in his opportunities for appealing to most of the newer diagnostic measures as they have come to us since the eighties, and peculiarly well situated to appreciate the assistance they have given us, I have been greatly impressed by the truth as revealed by these very procedures, that a good clinical history, discriminating observation of the patient, the skilled application of the old and simple measures of physical examination—inspection, palpation, percussion, auscultation—and careful reasoning on our data, are still the basis of all good diagnosis:

That he, versed in these methods, can, unaided, find the answer to most of the questions coming to him:

That only such a man is able properly to utilize the information brought by newer methods:

That there are few short cuts in diagnosis;

That the proper training of the student in the simple fundamental procedures of physical examination, is perhaps the most important function of the school of medicine:

That the conscientious employment is a necessity for him who would become a good doctor.

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THE NEW ORDER

With this issue of Colorado Medicine, transfer of all business and administrative activities of the Colorado State Medical Society to the office of the Executive Secretary, as contemplated by the House of Delegates, has been completed.

The Executive Secretary might be compared to a contractor. The foundations have been laid, and are solid. The owners and architects have given the contractor his blueprints. His tools and materials are at hand. The responsibility now is largely his own. Of course, if a contractor's workmen go on strike—but we need not consider that, for the officers and committees of the Colorado State Medical Society and its constituent county societies are alive to their responsibilities, and they will not fail. One by one the building stones now begin to fit into place.

The Society has for years planned this program. At the 1928 annual session a nebulous idea took shape. On June 1, 1929, it congealed. At the 1929 annual session it began to move. It has been spoken of as a rebirth. In theory it is. All who worked for the program, and the Executive Secretary especially, hope it will be a rebirth in fact.

To become more concrete, here are a few of the things accomplished:

Efficient redesign of all membership and information files, and creation of additional ones.

Establishment of an office designed to be of real service to the membership.

Revision of all record systems with a view to simplifying the work of county society secretaries and increasing accuracy.

Installation of equipment so the office can by bulletins reach any part or all of the membership on short notice.

These have formed the foundations.

No editorial of reasonable reading length could explain all the plans for the coming year. So the Executive Secretary hopes within the next three or four months to visit personally each county and district society and make these plans known.

But, briefly, here are a few of the building stones being set in their niches:

A campaign to increase the advertising revenue of Colorado Medicine.

A campaign to bring about greater use of the Society's library by members outside of Denver. You should read the notice of this library service on the inside back cover.

Gradual completion of the new record systems so that our records, those of the American Medical Association, and those of each county and district society will always agree.

An explanation, personally and through the Journal, of services the Executive Office is prepared to give to all members.

This latter includes the personal service of the Executive Secretary in answering questions or obtaining information on any subject pertaining to organized medicine. The office has ways and means of getting information that the individual physician does not. The office is close to the State Capitol and the Denver Federal Building. Members will get quicker and more satisfactory answers to official inquiries by addressing the Executive Secretary than by addressing federal and state governmental offices direct. This service also includes the ability of the office to find, for local societies,

the best speakers on any given medical subject.

Finally, this is how each individual member can help the building program, if he will:

Read Colorado Medicine. Acquaint yourself with the new activities. Each issue will contain some new fact about them.

Use your State Society's library services.

Use the Executive Office's new services.

Patronize those firms who advertise in Colorado Medicine, when possible. If you need nothing they have to offer, at least let these firms know that you saw their advertisements. If you do business with a man who does not advertise with us, ASK HIM WHY, and give him our address.

Help bring our biographical record of the membership up to date, by filling out YOUR OWN record, using for convenience one of the new member's application blank forms. Your county secretary has these blanks.

Pepper the Executive Office with your criticisms.

When it is time to elect 1930 officers for your local society, elect active officers. Much of the new program's success depends upon the willingness of county secretaries and county committees to devote a few hours a month to the advancement of organized medicine.

H. T. S.

THE PROFESSION AND THE LAY PRESS

It is a matter of common knowledge that the lay press is not very friendly toward the medical profession. The main reason for this attitude is the profession's dislike of sensationalism and half-baked theories, and its skeptical attitude toward cures and discoveries which have not passed the test of scientific analysis. In other words, the profession and its work lacks the all-important "good story element." The press, therefore, has little or no use for it. The medical topics which occasionally appear in its columns are invariably of a bombastic, propagandistic, soap-box variety.

There are, however, a few periodicals whose pages are presumed to be devoted to sober thought and sound opinion. The August and September issues of Current History (the New York Times monthly) which belongs to the type of press intended for thinking people, contains two articles in which the profession is painted in such monstrous terms that it is worthy of the attention of every member of the profession. T. Swann Harding, who calls himself a research chemist, writes in the August number under the title, "The Cost of Medical Disorganization." He charges the medical profession with every crime except treason. We shall mention only a few of the indictments: "One-half of 1 per cent of the United States Budgets Bureau's total estimated expenditure for the fiscal year 1926-27, or $17,500,000 only, went to the promotion of public health by all agencies of the government combined. . . . Had the 1910 typhoid mortality been maintained in 1927, we should have had 6,400 deaths from this disease instead of an actual 638. . . . The New York State Department of Health reports in September, 1924, that of its thirty-four diphtheria deaths, the physician was 'wholly' or 'probably' or 'partly' responsible for six deaths. . . . Fifty to 98 per cent of our people have decayed teeth; 30 per cent have adenoids. . . . Doctors levy an enormously large tax on married couples." (The authority for the tax levy is a certain doctor of medicine who wrote an article in Harper's Magazine in which a great many married couples told him that their family difficulties and pending divorces were due to the inability to meet large doctor bills.) Last but not least, "The medical practitioners we have are inaccessible. They cannot advertise. The American Medical Association will not list them in accordance with their competency. They list them in accordance with whether they pay their dues or not."

In the September issue Dr. J. F. Baldwin writes under the title "Scandal of Fee-Splitting Doctors." Dr. Baldwin is 79 years of age, plus 91 more words of titles. He speaks of the popular distrust of physicians because of their incompetency and their practice of fee-splitting. He denounces the fee-splitter in words which make Dante's scorn of Judas Iscariot, Brutus, and Cassius pale into insig-

nificance. He quotes numerous physicians who share his opinions. However, in his enthusiasm in denouncing the fee-splitting, he becomes over-zealous and exaggerates matters to such a degree that one fails to understand his motive. "Four women out of five subjected to hysterectomy die because of fee-splitting," and "among observing members of the profession, the general opinion seems to be that in certain lines of special work, particularly surgical, not less than nine-tenths of that work in many communities is done by fee-splitters." . . . "Were fee-splitting limited to the young and impecunious physicians and steadfastly opposed by the men of apparently high standing, the condition," continues Dr. Baldwin, "would not be disheartening; but it is certainly depressing to find so many physicians of ample means, of large practice and supposedly high professional, religious, and social standing, demanding without a blush their 'pound of flesh.'"

Dr. Baldwin bemoans the popular distrust of the physician and quotes from "The Doctor's Dilemma" by Bernard Shaw, "They have as much as any other class of men, no more and no less; and what other men dare to be impartial where they have a strong pecuniary interest on one side? Nobody supposes the doctors are less virtuous than judges, but a judge whose salary and reputation depended on whether the verdict was for the plaintiff or defendant, prosecutor or prisoner, would be as little trusted as a general in the pay of the army."

Dr. Baldwin gives six objections to fee-splitting. The rank and file of the profession would unhesitatingly state that five of these are superfluous. Fee-splitting is dishonest, it is crooked, and that is enough to condemn it.

Every doctor knows that there are physicians who engage in the practice of fee-splitting, but the majority of physicians are the very first to combat this evil and they are doing everything within their power to eradicate its practice. The numerous quotations and denunciations in Dr. Baldwin's article are from the lips of **physicians and from no one else.** To speak of fee-splitting as an attribute of the medical profession is unjust, unfair, and wholly untrue. It is just as unjust and untrue as if one would condemn the entire clergy because occasionally a preacher steals the funds which are placed in his trust. The physician has always stood without a competitor in the matter of individual charity. No member of any other profession equals the physician in the lavishness with which he gives of his services.

The entire history of medicine is proof that altruism and service are ingrained into its very soul. It was the first profession to formulate a code of ethical conduct. Hyppocrates' guide to physicians needs but little modification to meet the highest ideals of the Twentieth Century. History has numerous illustrations where the profession continued to render service to humanity at the risk of life and limb. Twenty-five hundred years ago the great physician Empedocle devoted to the poor the following verse:

"Thou art my friend; to thee
All knowledge that I have,
All skill that I wield are free."

Thirteen hundredyears afterwards the author of the "Physician's Prayer," Maimonedes, uttered in his supplication: "Me also thine eternal providence hath chosen to watch over the life and health of thy creatures. I am about to begin the exercise of my profession. Guide me, All Kind One, in this great work. May not thirst for gain or craving for fame mingle in my service. For these are enemies of truth and charity, and they might mislead me and keep me from doing what I ought to do for the weal of my fellow men."

During the reign of Frederic the Second the physicians' code required them to treat the poor free and, "if necessary, visit them twice during the day and not less than once during the night." In 1687 the College of Physicians bound their fellows and licentiates to treat the poor of London and its suburbs free of charge. In 1696 history chronicles that fifty-three influential physicians of London subscribed ten pounds each to establish a dispensary for supplying drugs to the poor at cost.

The medical profession has always held the patient's interest as of paramount importance and the medical leaders are the first to advocate preventive medicine which tends to do away with a great deal of medical practice. The constitution of the American Medical Association, which isn't quite one hundred years old, states that the purpose of the organization is "to promote the science and art of medicine and the **betterment** of public health." Betterment of public health means a diminution in the pecuniary interest that is so hard for Mr. Shaw to overcome. If the author of "Mrs. Cassel Byron's Profession" knows of any other calling which is constantly devising means to eradicate its own livelihood, he has never expressed it either in his dramas or in any of his public utterances.

When superstition prohibited dissection of the human body, physicians and medical students were compelled to resort to grave robbing. Those were the days before the electric light and the automobile. Those were the days when Poggio, the Florentine humorist, ridiculed the physician as invariably inspecting the urinal. It is indeed a bit strange that the author of "The Doctor's Dilemma" does not see that those who would expose themselves to grave robbing and the aroma of the urinal may have been prompted by a deeper and nobler spirit than a merely pecuniary one.

It is the profession's glory that thousands and thousands of its members have been martyrized in order that humanity might be spared the suffering from pestilence, disease, and premature death. The torch of the profession has kept on burning in the era of the Hammurabic Code, the Visigothic Code, and on through the days when John Hunter, Hammond, Carrol, and Henry Head subjected themselves for experimental purposes, to the time of Lazear, McClintock, Bergonié, Bacot, Adrian Stokes, and Noguchi, who passed but yesterday. As Dr. J. B. Nichols mildly puts it, "Certainly men who so frequently render a large part of their services gratuitously and are constantly devising means to eradicate their own means of livelihood can't be convicted of being mercenary altogether."

A word of consolation to Mr. Harding's married couples upon whom the doctors levy an "enormous tax": The science and art of medicine has prolonged the span of human life for about fifteen years. In this additional time it is hoped that they will learn that their marital difficulties are due partly at least to things other than doctor's bills.

L. V. T.

POST-VACCINAL TETANUS

The Role of Vaccination Dressing in the Production of Post-vaccinal Tetanus.—Public Health Report, August 2, 1929, Dr. Charles Armstrong, Surgeon, United States Public Health Service.

"Eleven cases of post-vaccinal tetanus which followed the use of bunion pads as vaccination dressings were investigated. Bunion Pads of the same varieties and from the same sources were collected and examined. Twenty-five per cent of them showed the presence of tetanus organisms grown on glucose broth or meat mash. Except for the bunion pads just described and for the "bone-point" scarifiers discovered by McCoy and Bengston in 1917 B. tetoni has not been demonstrated in any of the materials used in vaccination against smallpox.

"The post-vaccinal tetanus cases studied by Dr. Armstrong were all affected by the same factors; namely, high susceptibility to vaccina (primary vaccinations), large insertions by the scarification or cross hatch method, and the use of shields and dressings.

"The fact that tetanus has developed from the tenth to the fourteenth day after the vaccination has been done, would seem to indicate, in the opinion of the author, that tetanus develops only under the warm, moist, anaerobic conditions surrounding the covered vaccination site at that time.

"It is recommended that primary vaccinations are best performed during the first year of life, since it is a well-established fact that infant vaccinations tend to run a milder course than do primary vaccinations performed later; and, furthermore, the child is protected against smallpox during a period in which it would otherwise be susceptible. The infant, moreover, is confined to an environment which would seem to offer less opportunity for accidental contamination of his vaccination.

"The child vaccinated upon entrance to school runs a much greater chance of contaminating his vaccination.

"The author concludes from his investigation of actual cases and from experimentation with laboratory animals, that:

"1. Primary vaccination should be performed during the first year of life.

"2. Insertion should not be over one-eighth inch in its greatest diameter, made by some method which does not remove or destroy the epidemis.

"3. After care should be such that anaerobic conditions are impossible."

—Contributed.

SYMPOSIUM ON ACIDOSIS*

ACIDOSIS IN CHILDREN

E. L. TIMMONS, M.D.
COLORADO SPRINGS

Acidosis is the depletion of the bodies fixed alkalies. Since it is the result of the abnormal physiological processes associated with many disease and conditions, it cannot be in itself considered a disease entity.

During normal metabolism the ordinary acids produced, such as carbonic, phosphoric and certain organic are neutralized by ammonia so that the alkali reserve remains the same. If failure to handle excessive acids occur we have an acidosis.

The changes in tissue juice equilibrium are shown in the blood plasma, hence a study of the plasma shows what is taking place in the body.

In health the body fluids remain about the same. In disease certain conditions may arise which cause serious changes in the body fluids.

The chemical changes leading to acidosis are dependent, in diseases of children, on such factors as vomiting, diarrhea, dehydration, circulatory or renal insufficiency.

In severe watery diarrhea we may expect an acidosis the cause of which is not always plain.

It is not always the result of acetone bodies but may be caused by failure on part of kidney to excrete acid phosphate, which is usually due to a functional incapacity because of the fluid loss through the bowel.

Marriott says (and my paper follows his teaching) "Acidosis due to accumulation of acids from incomplete oxidation as a result of diminished blood volume and concentration through fluid loss, which often disappears on administration of fluid to restore blood volume to normal."

In infancy and childhood acidosis is probably more common than in adult life.

By some peculiar disturbance of the chemical reaction of the tissues which it seems is an acid produced, we have so-called scrofulous, excoriated lesions, eczema, seborrhea, enlarged lymphatics, soft muscles, poor digestion, and frequent respiratory tract infections, etc.

The newborn is in a state of physiologic acidosis because it has been found the blood carbondioxide is 20 per cent below adult.

The well-nourished newborn has a good supply of glycogen which usually lasts less than twenty hours; hence, as a rule, until breast milk becomes sufficient for energy requirements, the newborn suffers carbohydrate deficiency. This, with low blood alkalinity, would certainly place the newborn in state of potential, if not positive, acidosis.

There are many methods of determining the degree of acidosis. Since most of these are impractical for the general practitioner we may use simpler measures, usually three to six grams soda bicarbonate are sufficient to change reaction of child's urine to neutral. If urine remains acid and no nephritis you may assure acidosis exists.

In diseases of children acidosis occurs in the following: Whooping Cough, Diabetes, Influenza, Pneumonia, Nephritis, Pylorospasm, Anesthesia, Cyclic Vomiting, Recurrent Vomiting, Diarrhea, etc.

Diagnosis

While normal urine is acid, when body alkali is low, kidneys excrete larger proportion of acid, hence acidity goes above normal which is evidence of an acidosis.

Then the air hunger type of breathing, not shallow, rapid, stridulous or labored, they are even but accomplished with effort. Usually no cyanosis. May be drowsy in severe types. Odor to breath only in acetone body cases.

The Laboratory Diagnosis will not discuss, merely mention some:

1. Determination of bicarbonate reserve of the plasma.
2. Determination of the carbondioxide tension in the Alveolar air.
3. Alkali tolerence test.
4. Acetone bodies in urine.

*Delivered before the fifty-ninth annual meeting of the Colorado State Medical Society, Greeley, September 3, 4, 5, 1929.

The Clinical Types

1. Due to acetone bodies.
2. Lactic acid produced in severe exercise, convulsions, shock, etc.
3. Due to unknown organic acids.
4. Cardio respiratory disease.
5. Renal origin and diarrhea.

Prognosis

Depends on cause.

1. Acetone body type easiest relieved.
2. Diabetic types bad.
3. Recurrent vomiting type good if recognized early and vigorously treated.

In treatment we should try to prevent formation of more acids, increase alkali, reserve and eliminate acids. Recurrent vomiting glucose and soda by mouth, rectum or intravenously. If by mouth 5 to 10 per cent glucose; by rectum, 5 per cent and 2 per cent soda. Always give slowly. Bowels open. In cyclic vomiting no fat and very little protein for several days.

In alkali therapy the blood and tissue fluids contain about 3 grams soda bicarbonate per kilogram. Seventy per cent of body weight made up of these fluids. If blood bicarbonate is diminished one-half, then we should give 1 gram bicarbonate per kilogram body weight to restore to normal. It may be given in many ways. By mouth ½ to 1 dram every 2 to 4 hours in solution well diluted. Not much danger of too much soda bicarbonate.

Water is my best agent, more necessary than any other. If given in small amounts and continuously serves me well, by mouth, rectum subcutaneously or intra peritoneally.

While these methods may relieve, we must find real cause and remove the same or the condition may recur.

Hence successful treatment of acidosis depends on early diagnosis, proper selection of remedy and vigorous use of same.

ACIDOSIS AS A SURGICAL CONSIDERATION

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COLORADO SPRINGS

Acidosis and Ketosis

Acidosis is best described as a symptom and not as a disease. This should always be kept in mind in treating patients.

It is necessary to understand the mechanism maintaining the neutral balance of the blood before discussing acidosis. The injection of an acid into the blood stream does not change the reaction of the blood up to a certain point, and the mechanism which prevents the tissues from becoming acid is as follows:

If an acid substance and alkaline substance, mixed, do not react with each other, the mixture gives a "certain reaction." This "certain reaction" depends on the relative amounts of the two substances. In the human body the reaction is slightly alkaline. The acid is ordinary CO_2, large quantities of which are excreted by the lungs daily, estimated at 200 c. c. to 400 c. c. of concentrated hydrochloric acid each day. The alkaline or hydroxyl substance is sodium bicarbonate. These two exist in the relation of 1 part CO_2 to 20 parts sodium bicarbonate ($NaHCO_3$) present. The CO_2 is present as H_2CO_3.

If the CO_2 is present, it does not matter in what quantity provided the sodium bicarbonate is present in corresponding amounts. When this is so, the reaction is always the same. If the CO_2 is doubled and the sodium bicarbonate doubled, the mixture remains the same.

What happens in acidosis is that there are present in the body some acids which the body cannot eliminate in the usual way, or there is excess of acid formed which combines with a certain amount of sodium bicarbonate in the blood reducing it. This leaves a tendency for the blood to become acid, but it never occurs except "in extremis." The reason is: the lungs throw off extra CO_2 and there is the same reaction as before—a balance.

The acid base balance in the blood and tissues is always preserved slightly on the side of alkalinity; thus the "Alkaline reserve." It is produced by the free carbonic acid present in the body fluids in such concentration that it automatically converts into bicarbonates all bases not bound by other acids. So the bicarbonates in a constant excess

form a strong buffer mixture to preserve the almost neutral reactions of the blood and tissues against additions of alkali or acids. This buffer is supplemented in the plasma by the presence of phosphates—alkaline disodium phosphate NA_2PO_4 and acid monosodium phosphate NaH_2PO_4 and further by the presence of albumin globulin.

The latter have a tendency to take up acids and bases without change in reaction. Excessive acids in the blood neutralize the bicarbonate, liberating an excess of CO_2, which process increases the output of carbon dioxide through the lungs and depletes the body's reserve of alkali.

Acidosis then, is a condition in which the alkaline reserve or the sodium bicarbonate is lower than normal.

The normal $NaHCO_3$ in the blood gives off about 65 c. c. of CO_2 per 100 c. c. plasma; in mild acidosis 40 to 50 c. c.; in moderate acidosis, 30 to 40 c. c.

Acidosis results usually when there is an insufficient utilization of carbohydrates by the body to oxodize the fats and proteins, which results in byproducts called ketones.

Ketosis is a condition of acidosis in which the acids present are organic, oxybutyric, aceto-acetic, diacetic and its derivative—acetone. They take the name of ketone bodies. Ketone bodies are probably an expression of the lack of sugar and glycogen to satisfy the calorific requirements for metabolism. They are, further an imperfect attempt to utilize fats in place of carbohydrates.

Symptoms and Signs

The diagnosis between an acidosis and alkalosis should be made immediately, because the symptoms of the two maladies are so similar. Too often has a patient with a high alkaline reserve been given an alkali.

In considering the symptoms and signs of acidosis one should not be confused by the symptoms of some other condition possibly causing the acidosis. These symptoms are not usually very apparent until the acidosis is well established and the patient's condition serious.

Some of the earliest evidences are:

a. Respirations slightly deeper and more rapid.
b. Fruity odor on the breath.

And here the urine should be examined for diacetic acid and acetone, as these appear early in the condition, usually before any symptoms are apparent, except where kidney damage is present and these acids are not being excreted. The writer believes that every routine examination of urine should include a diacetic and acetone test.

Later symptoms, as the acidosis becomes more pronounced, are:

Irritability, nervousness, headache, weakness, nausea and perhaps vomiting, stupor or somnolence, increased air hunger of the Kussmaul type, lack of cyanosis, flushed face, red lips.

In cases in which the acidosis is a complication of dehydrating diseases, the skin is dry and the tongue and mucous membranes of the mouth dry.

As the acidosis advances towards the precomatose state the symptoms and signs become more pronounced, especially the breathing, which is very deep with no pause between inspiration and expiration. The stupor deepens until coma develops. I do not think that a patient should be said to be in real coma if he can be roused by slapping his face. But when this cannot be accomplished, and he will make no response to the slapping or when spoken to loudly, he is in profound coma.

Tests

The tests for acidosis and its end stage, coma, are very important. This is one condition in which the tests are invaluable for diagnosis, prognosis and as a guide in treatment.

Of the urine tests, perhaps ferric chloride test for diacetic acid is the most valuable. The acetone test is more sensitive and for this reason is misleading. To overcome this fault the acetone is best estimated by observing the length of time required for the maximum depth of color to be reached, rather than simply the depth of color. The amount of acetone varies with the time. If there is more acetone present the same depth of color will eventually be reached,

by either a moderate or heavy amount. It is best to test successive specimens simultaneously and observe the difference in depth of color developing.

The alkali deficit can be roughly tested by giving soda by mouth until the urine is alkaline, as described by Sellards. Five grams of sodium bicarbonate will produce an alkaline urine in a normal person in one hour. In acidosis ten to one hundred grams are required and indicates the deficit of alkali. The carbon dioxide Tension of Alveolar air, described by Marriott, is not a satisfactory test due to poor co-operation of the patient in severe acidosis and coma.

The hydrogen ion concentration of blood plasma, a simple method, described by Cullen, is valuable but the variation is very slight which makes the technique require great care.

The carbon dioxide combining power of blood plasma (Van Slykes) is probably one of the best tests. It is very accurate. Normal is 55 to 65 volumes per cent. If reading is 40 to 50, it indicates very mild acidosis with few, if any, symptoms. If reading is 30 to 40, it indicates symptoms of nausea, weakness, headache, stupor, slight air hunger. If reading is 20 to 30, it indicates semicomatose state with above symptoms more pronounced.

Below 20 the patient is in coma, and below 16 recovery is questionable.

The sodium nitroprusside test on blood plasma is very valuable, especially where the kidney damage prevents excretion of ketone. By testing successive specimens and noting the rate in which the rose pink color develops. This is especially useful in diapetic acidosis and coma.

Acidosis in Relation to Anaesthesia

Since Crile first used the Van Slyke method of determining the diminution in the alkaline reserve, post operatively, special attention has been paid to the influence and prophylaxis of anaesthesia acidosis.

In his paper, October, 1914, he describes accurately and with proof the acid-forming properties of the body and the necessity of maintaining a wide margin of safety against anaesthesia acidosis.

Crile, as early as 1914, though advocating the use of morphia pre and post operatively, states specifically that in cases of impending acidosis its use is contra indicated since it interferes with or prevents the neutralization of the acidity in the blood. In its place he recommends bromides per rectum (chloral and bromide).

W. H. Morriss of New Haven, in a paper published A. M. A. 1917, went into the subject of prophylaxis of anaesthesia acidosis most thoroughly.

His conclusions were:

(1) One influence of the anaesthetic is towards the depletion of the alkali reserve.

(2) During the first half hour the factor of safety is notably modified and the drop is more profound in the case of chloroform than ether.

(3) The initial drop in the alkali reserve is followed by a rebound; from that level there is a gradual decrease until the conclusion of the anaesthesia.

(4) Preliminary administration of sodium bicarbonate increases the alkaline reserve, though the most noteworthy effect of this treatment is to lead to higher values for this factor of safety at the conclusion of the anaesthetic.

(5) The administration of a sodium bicarbonate before operation is a rational precautionary measure against post operative vomiting.

Russ and Quillen both agree that giving sodium bicarbonate prior to an anaesthetic is helpful.

R. D. Lawrence of the Royal Society of Medicine says definitely inhalation anaesthetics causes a slight acidosis, a fall of 10 vol. per cent in alkaline reserve producing an increase in urinary acidity. On the other hand, Caldwell and Cleveland, in an exhaustive work on acidosis, relative to anaesthesia, state:

(1) In the average case undergoing operation, unless showing marked glycosuria, ketonuria or acidaemia, the degree of acidosis is negligible, and the choice of anaesthetics, so far as acidosis is concerned, irrelevent.

W. H. Geddes, formerly at Banting's

Clinic, heartily approves of the administration of sodium bicarbonate prior to anaesthesia, provided there is shown a tendency towards acidosis or the presence of ketone bodies; particularly, if the patient is a diabetic.

The pre-anaesthetic method of administering the bicarbonate will be given under post operative treatment.

The prevailing opinion as to the choice of anaesthetics as regards acidosis is that (1) locals and spinal cause the least; (2) for general anaesthesia gas and oxygen and ethylene; (3) ether where patients are prepared properly or at least the administrators know the patient has acidosis; (4) the use of chloroform is generally decried.

Pre Operative Acidosis

Heretofore, the means of determining the condition of a pre operative patient have been dependent on blood counts, arterial tension, hemoglobin estimations, urinalyses. Now we are fortunate in having another aid, the alkaline reserve determination.

When patients present themselves with signs of acidosis the first procedure is to determine the extent of acidosis and degree of ketosis, if present. It has been shown innumerable times before that improper food-vomiting, starvation and dehydration are all forerunners of acidosis. Next, one combats both the lack of fluids and the acidosis in one of several ways.

1. By mouth, if the patient is not vomiting, ample fluids, glucose solution, sweetened orange juice, stick candy, and other carbohydrate diet, i. e. cooked cereal.
2. If the patient is unable to retain mouth feedings, a 10% glucose solution and 3-5% soda solution are given by rectum Murphy drip, preferably 40-60 drops per minute.
3. If the rectal administration fails, then subcutaneous injections of saline supplemented by glucose given intravenously either with or without insulin. The amount of fluid (saline) is dependent on the patient's ability to absorb it.
4. Otherwise, with glucose C. P. already prepared in ampoules and the accessibility of normal salt solution it is very easy indeed to prepare and give 500 to 800 c. c. of 5% glucose intravenously, permitting ample time for the patient to receive this quantity of fluid—one to one and a half hours. If ketosis is present insulin is given in conjunction with the glucose in the ratio of one unit of U 10 to each 2 grams of glucose injected. It is perhaps better to give one half the insulin at the beginning of the procedure, and one-half at the end. The average dose of glucose is 1 gram per kilogram of body weight.
5. To prevent an overdose of glucose or in the advent of too much insulin and ensuing hypoglycaemia frequent urine examination should be done.
6. Vomiting is one of the most serious occurrences in acidosis and frequently necessitates washing out the stomach, leaving in a small stomach tube for feeding or the giving of glucose by vein or under the skin or by bowel.

In treating acidosis, especially where dehydration is present, the tongue is a good "barometer" of the condition of the patient. The extent of the rough leather-like dryness is a good indication of the patient's condition, as well as of the extent of the dehydration. If the whole surface of the tongue is dried off, the patient will be in deep coma within an hour. As the patient's condition improves, the dry area becomes smaller and the tongue becomes moist. It is wise always to watch the tongue of an acidosis patient.

In the treatment of acidosis as a complication of most diseases, soda by rectum and by mouth suffices along with the usual treatment. But severe forms, as in diabetes mellitus, conditions in infants accompanying acidosis, glucose with insulin is more often needed.

(1) Insulin is not necessary to every case, but in severe ketosis and toxic conditions, insulin should be given with glucose.

(2) In administering glucose solution there is no definite standardization.

If a patient has circulatory failure it is better to give small amounts of fluid and a higher concentration of glucose. Conversely, if the patient suffers from the peril of dehydration, a less concentration of glucose and a greater amount of fluid to compensate for the discrepancy.

(3) If emergency operations of sepsis and shock operations must be done rapidly and with supportive fluids given during the operation, the acidosis must necessarily then be looked after post operatively.

Treatment of Acidosis

Acidosis in connection with operative surgery is either pre-operative or post-operative. In the former it must be eliminated by proper measures before operation. The post-operative acidosis can usually be avoided by suitable preventive measures before operation.

In the treatment of acidosis there are two factors to be remembered:

(1) There is an excess of acids in blood and body fluids. This must be overcome by getting rid of these acids. It can be accomplished:

(a) By washing out as much of these acids as possible in the urine by forcing fluids and by giving glucose, which causes a diuresis. It must be remembered that only 11 grams of ketones can be excreted in one litre of urine, and if this method of elimination is going to be effectual much fluid must pass through the body.

(b) By so-called "burning up" the ketone bodies. When glucose and insulin unite in the body, ketones are changed so that they become harmless. This is especially needful in diabetic acidosis and coma, as the patient has little or no glucose stored in the body and the supply of insulin is very inadequate to cope with such a condition. It is absolutely necessary for the treatment to eliminate more ketones than are being produced and for this to be accomplished in the shortest time, as any patient in acidosis is liable to go to pieces at any time, even before the acidosis has become grave. It is, therefore, believed that glucose and insulin in the vein or under the skin or in the peritoneum, in infants, gives one a start on the acidosis and can be followed up by treatment by mouth. One is never sorry for giving glucose and insulin this way in acidosis, due to diabetes mellitus, but frequently regrets not doing it when an acidosis, which apparently was not grave, gains ground by leaps and bounds. Time is a big factor in all cases of acidosis and it still seems that more can be done in the first hour of treatment than in any six succeeding hours.

Repeatedly, after giving carbohydrate by mouth or stomach tube and small doses of insulin every hour in diabetic acidosis and coma, the acidosis has been seen to gain ground and it was necessary eventually to give large quantities of 10% glucose and large doses of insulin to "get ahead" of it.

If this had been given earlier, as was evidenced in other cases, less would have been required. The glucose and insulin, if given carefully and slowly, cannot do harm and it has been seen to do wondrous good. By giving smaller amounts, intravenously, as 500 to 800 cc. and using 10% glucose with insulin, 1 unit for 2 grams of glucose, and giving it more frequently, there is less danger of overloading the heart and patients seem to do better. The glucose can be given in normal saline every other time.

It has been said insulin is not needed with glucose. This has been tested and found in error, and we do know that insulin will help, especially if the pancreas has been affected by the existing condition, and frequently patients without diabetes excrete sugar in the urine after intravenous glucose. This can be saved by giving a little insulin.

(2) The second factor in the treatment is the restoring of the alkali reserve and it is firmly believed that the giving of sodium bicarbonate is indicated.

Frequently, the longer the acidosis has

existed untreated, even though only moderately severe, the greater the alkali deficit, and such cases in diabetic coma are much more difficult to reclaim. Frequently, cases which have been days or weeks getting into a semicomatose condition have been given very active treatment, but did not recover. On the other hand, cases who have been suddenly precipitated into deep coma have been easily brought out of it. In long-continued acidosis, greatly reducing the alkali reserve probably in the body as well as in the blood, sodium bicarbonate is an important factor and it can do no harm and may help. One does not feel that there is sufficient evidence to warrant the belief that soda releases ketones, which are combined in a harmless form in the body. There is one fact to be remembered, that when sodium bicarbonate is begun, the diacetic and acetone reactions will be more pronounced, even though the patient is coming out of the acidosis or coma and improving.

In giving soda, it should be given in definite, sufficient amounts:

In giving it by mouth, 1 gram per kilo body weight per hour is the maximum to be given with safety. The urine should always be watched and when it turns alkaline the soda is discontinued. It is known that 1 gram of soda per 84 pounds body weight raises the CO_2 combining power 1% and by taking frequent CO_2 estimations and not allowing the CO_2 to rise above 40 volumes per cent the giving of soda is made perfectly safe.

Post Operative Acidosis May Be Divided Into:

(1) Acidosis without ketonuria.

(2) Ketonuria with or without real diminution of the alkali reserve.

In the first, largely, come the renal conditions. The true test is by chemical examinations, but if these are not available, acidosis may be diagnosed by the intense dysponea. General anaesthetices for obvious reasons are avoided aside from the impending acidosis. It is in these renal cases that diacetic and acetone are poorly excreted, and phosphoric acid lowers the alkaline reserve. There is also an increased ammonia output.

In the second, where ketone bodies are found before operation, if quantities of acetone are present, the alkali reserve may be lowered and a real acidosis is met. More frequently a ketosis will be seen with no reduction in the reserve bicarbonate. The ketosis cases must be observed closely, because the anaesthetic lowers the alkaline reserve, and because of a possible anaesthetic liver damage, particularly in the presence of sepsis. Ketosis is often the sign of a lowered glycogen store in the liver and a depleted glycogen may mean a stormy convalescence.

In Diabetics

The surgeon who has time to prepare the diabetic patient for operation is capable of rendering that patient comparatively safe.

Much carbohydrate should be given several days in advance. Fluids and sufficient insulin to insure the patient of a good glycogen supply. In addition have the urine free of acetone and diacetic. Perhaps too much stress has been laid on having the patient entirely sugar free, except in cases of marked of marked sepsis.

The great hazard is in the cases which are emergencies, inasmuch as the preliminary starvation, anaesthesia and operative fear may turn a mild diabetic into a severe case of acidosis.

Just here—to digress—where there is dehydration, and always in diabetic acidosis and coma, the tongue is the best barometer quickly to make a prognosis of the condition. The eyeballs usually have a lowered tension, "feel soft." Patients are often extremely restless and resentful to being disturbed. The comatose state in diabetes is often ushered in by what appears to be an acute abdomen, with extreme pain, tenderness and marked rigidity simulating an acute appendix or general peritonitis.

The acute abdomen disappears when the intestinal tract is emptied freely and the acidosis is relieved.

A blood sugar and urinalysis should be done instantly and treatment of insulin instituted.

The usual treatment being:

20 units of insulin given with 20 grams of sugar intravenously if an

abundance of sugar and acetone are present.

This should be repeated about every four hours. If no sugar appears in the urine, extra glucose is given to prevent a hypoglycaemia and the unpleasant symptoms concomitant with it.

There is some evidence that insulin acts directly on the ketosis, though sugar must be given to permit insulin usage.

Diabetics must have early and copious elimination.

A diabetic patient, not very ill and with little acidosis before operation, may soon afterwards show signs of a very marked interference with his metabolism and a striking tendency towards coma. So long as this exists, insulin must be pushed always until the ketosis is diminished.

Besides pre operative, diabetic, renal, intestinal obstruction and post operative acidosis, one must consider the acidosis complicating the thyroid. Also, the similarity of acidosis to the acute abdomen and its occasional similarity to meningitis in children.

The removal of the thyroid with cases complicated by diabetic acidosis makes a serious condition difficult to control. It appears that only the early removal of the thyroid will permit these patients to recover. Another condition calling for special attention as to acidosis is the enlarged prostate.

The similarity of some cases of acidosis and acute abdominal disease is striking. Particularly so in relation to appendicitis. Dr. Stuart McGuire, of Richmond, in 1924 reported: first, the abdominal and gastric tenderness of acidosis, suggesting an acute abdomen. Also he brought out the fact that children do have chronic appendices and the removal of the appendix in several cases had stopped recurrent attacks of acidosis in children.

B. S. Lester recently operated on several small children with acidosis and meagre signs of appendicitis, and found a very acute inflammatory and oedematous appendix in each case. None of the children have had a return of their acidosis after the appendix was removed.

The findings in these cases were: (1) nausea and vomiting (2) some pain around the umbilicus (3) very little tenderness and rigidity (4) increase in leukocytes (5) perceptible increase in polys.

Severe acidosis seems to have an appreciable effect on reducing pain. Joslin reports a number of diabetic cases diagnosed by elimination and a high white blood count (total and differential). These cases had very little pain, tenderness or rigidity, yet on operating an acute appendix was found in each instance.

Ketosis in large amounts appears to have analgesic effect—unquestionably, it causes degenerative processes in the nervous system.

CONTENTS:

Geddes, W. S. Acidosis, Ala. State meeting 1929.

Bourne, W. On an attempt to alleviate the acidosis of anaesthesia. Proc. Roy. Soc. Med., (Sect. Anaesthetics), Lond., 1926, xix, 49-51.

Caldwell, G. A. and Cleveland, M. Observations on the relation of acidosis to anaesthesia. Surg., Gynec. and Obst., Chicago, 1917, xxv, 22.

Crile, G. W. Alkalescence, acidity, anaesthesia; a theory of anaesthesia. Surg., Gynec and Obst., Chicago, 1915, xx, 680-685.

Crile, G. W. The influence of anaesthesia on acidosis. Am. J. Surg., N. Y., 1914, October.

Fallas, R. E. Postoperative acidosis and alkalosis. Am. J. Surg., N. Y., 1929, vi, 145-147.

Fisher, D. Insulin—Glucose treatment of surgical shock and non-diabetic acidosis. Surg., Gynec. and Obst., Chicago, 1925, 548-555.

Fisher, D., and Snell, M. W. The insulin treatment of preoperative and postoperative nondiabetic acidosis. J. Am. M. Assn., Chicago, 1924, lxxxii, 699-700.

Fickenwirth, W. Postoperative nondiabetic acidosis. Zentralbl. f. Chir., Leipz., 1925, lii, 2821-2824. Abs.: J. Am. M. Assn., Chicago, 1926, lxxxvi, 318.

Herz, M. Nondiabetic postoperative acidosis. Zentralbl. f. Chir., Leipz., 1926, liii, 1684-1685. Abs.: J. Am. M. Assn., Chicago, 1926, lxxxvii, 1080.

Labbe, M., and Chevki, M. Postoperative acidosis. Presse. Med., Par., 1926, xxxiv, 1233-1235. Abs.: J. Am. Med. Assn., Chicago, 1926, lxxxvii, 1778.

Irwin, E. L. Glucose-Insulin therapy in nondiabetic acidosis. Am. J. Surg., N. Y., 1926, xl (Anaesthesia suppl.), 43-44.

Lee, Q. B. The uses of glucose and insulin in the treatment of obstetric and postoperative acidosis. Texas State J. Med., Fort Worth, 1925, xxi, 250-252.

MacLean, H. The use of insulin in surgical operations. Anesth. and Analg., Avon Lake, Ohio, 1928, vii., 209-214.

Lawrence, R. W. Postop. acidosis. Proceedings of Royal Society Med. 22, 747-754. Apr. 1929.

GENERAL MEDICAL CONSIDERATIONS OF ACIDOSIS

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PUEBLO

Acidosis is the term to designate a reduction of the alkali reserve (bicarbonates) in the blood below the normal level. In the general interpretation of the term in common use, acidosis is employed to designate an increase in the hydrogen ion concentration of the blood above its normal range.

Acidosis is an abnormal physiologic state appearing in a large number of diseases, but not itself a disease.

From the standpoint of the internist, its importance lies in properly interpreting the physiologic essentials of its production, the various types of acidosis, the disease in which it is apt to manifest itself, the symptoms of the entity and the kind and value of treatment indicated, if there be any.

At a sacrifice of some scientific accuracy, clinically acidosis may be divided into three types, or kinds:

1. Abnormal production of acids.
2. Retention of acids.
3. Fixation, or immobilization and excretion of the bases.

I. ABNORMAL PRODUCTION OF ACIDS: Acidosis is one of the most serious features of diabetes mellitus. The inability on the part of the diabetic to burn glucose prevents the oxidation of fat and certain amino-acids to proceed beyond the oxybutyric and diacetic acid stage; acidosis, or ketosis results. In starvation, in severe wasting diseases, in influenzal infections, in the vomiting of pregnancy, ketosis may be a complicating factor.

Lactic acid acidosis may be observed in violent muscular exertion and severe pulmonary disturbances, as bronchopneumonia, pulmonary emboli and massive collapse. It is frequently seen in cardiovascular failure. Conditions of anhydremia; severe vomiting, diarrhoea, acute hemorrhage may have a marked increase in the hydrogen ion concentration. Diseases causing an increased metabolic process, such as the pyrexia of acute infectious diseases and thyrotoxicosis often show lactic acid acidosis. Chronic wasting disease with an insufficient number of blood corpuscles, carbonic acid and lactic acid are in excess in the blood stream.

II. RETENTION ACIDS: Acidosis is but one of the occasional manifestations of renal insufficiency. Its importance lies in that there is a retention of acids and also there is an abnormal lowering of the bicarbonates of the blood. It is not due to an increased amount of acetone acids or lactic acids. It is caused in part by the failure of the kidney to excrete acid phosphate so that this substance accumulates in the blood, and in part to the lack of formation of ammonia. By the failure of these mechanisms, the normal acids produced in metabolism may not be completely neutralized and eliminated. A further condition is the retention of the nonprotein nitrogen elements, and in certain instances, the sodium chloride in the blood. This retention is often enough to raise the osmotic pressure of the blood were it not for the compensatory elimination of bicarbonate so that the osmotic pressure may remain the same—nonprotein constituents and the chlorides take the place of the bicarbonate. The reduction in bicarbonates so brought about gives rise to an acidosis classified as retention acidosis, and also acidosis from actual loss and fixation of base.

III. Conditions of immobilization of bases in the blood stream and loss of salts as bicarbonates normally mobile and present while found in kidney lesions, as has been stated, are usually present in young children suffering from severe gastrointestinal upsets with vomiting and diarrhoea and in individuals with severe vomiting, those with foecal fistulaes and those suffering from severe diarrhoeas.

Pneumonia may, or may not, have a concomitant acidosis. It is rarely a ketosis. Lactic acid may be produced, but the chief kind of acid is not certain. Barach reports in a series of 14 cases of severe pneumonia carefully studied, only 5 had a lowered carbon dioxide content, and one case only which was severe.

In poisoning by methyl alcohol, salicylates, and carbon monoxid, acidosis ensues.

SYMPTOMS AND SIGNS: The chief clinical sign is deep labored, slow type of breathing, that is, hyperpnoea:

An acetone breath is a clinical sign of a certain type of acidosis.

Headache, weakness, muscular pains, drowsiness may be complained of.

Stupor may be observed in the more profound types where the CO_2 combining power of the blood plasma drops from 55-65 volumes per cent to 20-25 volumes per cent.

The diagnosis, therefore, of the more mild types must depend upon the laboratory findings—blood and urine.

It must be remembered that a very considerable amount of acid is being produced in the body during the process of normal metabolism. In the presence of disease where there is some disturbance to the normal alkaline tide, mild acidosis probably ensues, but is soon compensated. In only the severe forms of acidosis does clinical manifestations appear.

TREATMENT: The treatment of the disease causing the acidosis should be one's first thought.

When acidosis is due to the production of large amounts of ketone bodies (beta hydroxybutyric acid and diacetic acid) the fundamental fault is in the oxidation of the fats, and may depend upon the absence of sufficient amount of glucose to burn the fatty acids completely, or the absence of the enzyme necessary to utilize the glucose. The indication, therefore, is for sugar and perhaps insulin.

When there is present an increased hydrogen ion concentration without a reduction of free blood bicarbonates, treatment of the acidosis is a treatment of the cause of it. Oxygen in the anoxemias, water in the anhydremias, water and sugar in the condition of the increased metabolism.

Little can be done in treating the acidosis of renal disease. When a true depletion of bicarbonates is present then and then only are alkalies indicated.

SOME BIOCHEMICAL CONSIDERATIONS OF ACIDOSIS

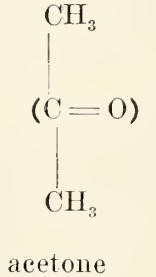
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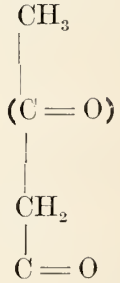
DENVER

That confusion exists in the minds of medical men and of men working in the field of medical science over the meaning of the term "acidosis" is too evident to all of us to demand particular emphasis. As this term and its related term "alkalosis" have gained increased clinical usage, they have come to be used by different persons to describe entirely different conditions.

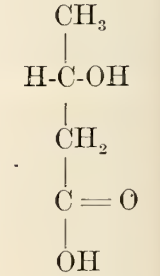
The first use of the term acidosis was to denote the occurrence of abnormal products of fatty acid metabolism,—acetone, diacetic acid and beta-hydroxybutyric acid—which appeared in the urine in diabetes. That an abnormal acid-base balance occurred in this disease was recognized but the term acidosis was used to describe a **ketonuria**, so-called because two of the three "acetone bodies," acetone itself and diacetic acid, contain the chemical grouping ketone, shown in parentheses in the formulae:



acetone



diacetic acid



beta-hydroxybutyric acid.

Subsequently, the term "acidosis" was used to describe a ketonemia or the occurrence of these so-called acetone bodies in the blood. In addition to the two usages just

given, acidosis has been applied (3) to decreased CO_2 tension of alveolar air, (4) to decreased alkali reserve, and (5) to decreased pH of plasma, thus lending to the confusion above mentioned.

Attempts to establish a general usage for the term acidosis have so far been unsuccessful. The British National Research Council has proposed that the terms acidosis and alkalosis be used to indicate low and high levels, respectively, of plasma bicarbonate and that acidemia and alkalemia be the terms used for low and high pH of plasma. The term "true acidosis" has been used by several investigators including Van Slyke, Austin and Cullen[1] to indicate a coincident low plasma pH and bicarbonate. Van Slyke[2] has adopted a graphic method of indicating the possible conditions of abnormal acid-base balance by plotting pH against bicarbonate concentration. This method will be described later. To obviate confusion in the use of the term acidosis, Austin and Cullen[3] have suggested that "it is better to avoid the term wherever possible or else to state the exact sense in which it is used." They suggest that it is well to state the acid-base balance in terms of two of its factors, so that it may be perfectly clear what is meant. Thus, the statement, acid-base condition = 7.4 and 50, might be used to indicate a pH of 7.4 and a CO_2 content of plasma of 50 volumes per cent.

Before proceeding further with this discussion, it might be well to review briefly the mechanism which is provided in the body for the neutralization of acids and bases which may be formed as products of metabolism. Only by having a clear conception of this mechanism, can we understand clearly the conditions of abnormal acid-base balance.

The normal reaction of the blood shows very little variation from time to time, from moment to moment. The blood is slightly alkaline, its hydrogen ion concentration varying ordinarily only between pH 7.35 and 7.43. This constancy of reaction would not be possible without a special mechanism for neutralizing either acids or bases efficiently and quickly. The carbon dioxide alone, occurring as it does in quantities of 50 volumes per cent in arterial blood and 55 to 60 volumes per cent in venous blood, would give to the blood a reaction 1,000 times more acid than it actually is. How then is acid neutralized and the blood maintained at an alkaline reaction?

Let us consider the carbon dioxide of the blood. It may exist in four forms:

(1) Free anhydrous carbon dioxide (CO_2),

(2) Carbonic acid (H_2CO_3),

(3) Bicarbonate ($BHCO_3$),

(4) Carbonate (B_2CO_3),

where B is used to represent a monovalent base such as potassium or sodium. In reality only the second and third of these forms exist in blood to any appreciable extent. The free CO_2 will unite with water according to the reaction:

$$CO_2 + H_2O \longrightarrow H_2CO_3$$

and the carbonate will react with carbonic acid as follows:

$$B_2CO_3 + H_2CO_3 \longrightarrow 2BHCO_3.$$

We have left then for consideration only the H_2CO_3 and the $BHCO_3$. These are present in the blood of a normal individual in a certain more or less definite ratio. Such a solution containing, as this one does, an acid and an excess of the alkali salts of the acid (or a base and an excess of its salts with strong acids) is called a "buffer solution," because it has a buffer action to resist a change in hydrogen ion concentration. This buffer action is expressed by the ratio, $\frac{H_2CO_3}{BHCO_3}$, or by its reciprocal, $\frac{BHCO_3}{H_2CO_3}$.

To illustrate the action of a buffer solution let us consider what would happen if we should add 1 c. c. of N/100 HCl to distilled water and to a buffer solution (pH = 7.0) such as the one just mentioned. In the first case, with water, the hydrogen ion concentration would change from a pH of 7.0 to a pH of about 5.0. In the second case, with the buffer solution, there would hardly be a perceptible change in the hydrogen ion concentration. Similarly, the buffer solution would be only slightly affected by the addition of a base like sodium hydroxide. Thus,

the buffer solution acts like a sponge to soak up hydrogen and hydroxyl ions.

The acid-base balance of the blood is not maintained by a single set of buffers but by the following pairs:

$$\frac{H_2CO_3}{BHCO_3}, \frac{BH_2PO_4}{B_2HPO_4}, \frac{HHbO_2}{BHbO_2}, \frac{HHb}{BHb}, \frac{Hprotein}{Bprotein},$$

where B = any monovalent base, HbO_2 = oxyhemoglobin and Hb = hemoglobin. By having these several buffer mechanisms, the body is the more adequately protected against the development of acidosis or alkalosis.

Much might be said about the efficiency of buffers but time will not permit a detailed discussion of this subject. However, two factors, which add greatly to the efficiency of the buffering power of blood, might receive more attention here. The first of these is the oxyhemoglobin—hemoglobin change; the second, the chlorine shift.

Concerning the former, it may be stated for our purposes here that both the reduced and oxidized forms of hemoglobin exist, as has already been shown, partly as free acids and partly as salts of strong bases, but that oxyhemoglobin, which is more highly dissociated, forms salts more readily than does reduced hemoglobin. Consequently, at any pH, the proportion of salts to acid will be greater in the case of oxyhemoglobin than for reduced hemoglobin. This may be expressed:

$$\frac{BHbO_2}{HHbO_2} > \frac{BHb}{HHb}$$

Thus, it is obvious and at the same time very significant that oxyhemoglobin in changing to the reduced form liberates a considerable quantity of alkali, sufficient in fact to neutralize a considerable part of the carbon dioxide produced in the tissues. Estimations made by Doisy, Briggs, Eaton and Chambers[4] of the amount of carbon dioxide carried by the various buffer solutions of the blood show that:

	Per Cent
CO_2 carried isohydrically ($BHbO_2 \rightleftarrows HHb$)	= 53
CO_2 carried by change of pH ($BHbO_2 \leftrightarrows HHbO_2$; and $BHb \leftrightarrows HHb$)	= 20-30
Total CO_2 carried by hemoblobin	= 73-83

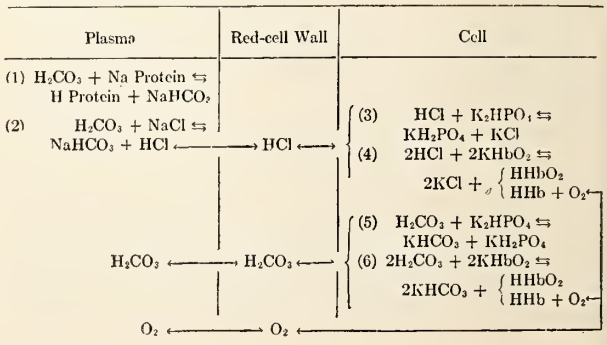
It is interesting to note that the most important buffer of the blood is isolated within the corpuscles.

Another factor of importance in explaining how the buffer within the corpuscles functions to buffer the blood is the chlorine shift. In 1895 Gürber[5] showed experimentally that neither sodium nor potassium can diffuse through the corpuscle wall, but that chlorine passes through readily. Thus, it may be assumed that the Cl ion migrates from the plasma into the corpuscles leaving its base available for purposes of neutralization. Van Slyke and Cullen[6] were able to account for 72 per cent of the alkali increase of the plasma by the chlorine shift, indicating that other anions, such as SO_4 and PO_4, also pass through the red cell membrane.

Doisy, Eaton and Chouke[7] have estimated that, when the reaction of the blood is changed from pH 7.45 to 7.25 by the absorption of carbon dioxide, the base furnished to form the additional plasma bicarbonate comes from the following sources:

1. Due to non-migrating serum buffers (plasma proteins, amino acids and organic acids) ..... 16 per cent
2. Due to migration of Cl into corpuscles ..... 80 per cent
3. Due to migration of other acid radicals (such as SO_4 and PO_4) ..... 4 per cent

The reactions which we have described may be summarized in a diagram presented by Austin, Cullen, Hastings, McLean, Peters and Van Slyke[8]:



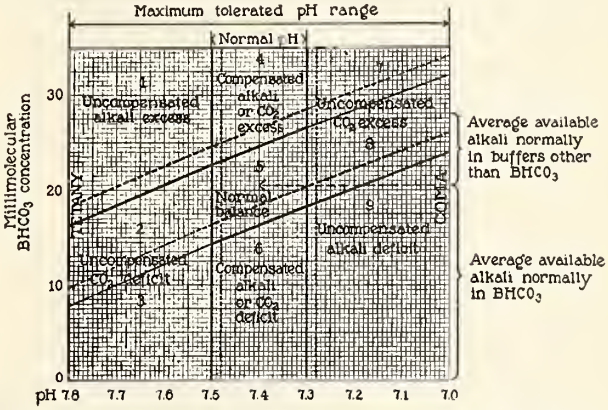
Thus, under normal conditions of metabolism the mechanism for maintaining a slightly alkaline reaction in blood and tissues is competent to neutralize the acids which may be formed as products of metabolism or to prevent the accumulation of an excess of base in the body. However, under certain abnormal conditions, the acid-base balance may be upset with a resulting acidosis or alkalosis depending upon whether there is a decrease or increase in the ratio, $\frac{BHCO_3}{H_2CO_3}$.

As already indicated, the most common method of expressing acid-base balance is to report the pH and bicarbonate content of plasma. Perhaps a more helpful determination than the latter is the CO_2-combining power of plasma. This determination tells the reserve alkalinity of the blood. In acidosis, the alkaline reserve is low and the CO_2-combining power of the blood is likewise low; in alkalosis, the alkaline reserve is above normal and the CO_2-combining power of the blood is abnormally high. Even when this determination is made, it is important also to know the pH of the blood.

In his paper on the normal and abnormal variations in the acid-base balance of the blood, Van Slyke[2] has shown that nine conditions are theoretically possible. The blood bicarbonate may be high, low or normal and in each case there may be a high, low or normal pH. The accompanying chart taken from Van Slyke's paper shows graphically the nine possible conditions. The chart has been made by plotting normal and abnormal values of $BHCO_3$ and pH of arterial and venous blood against one another. Even if time would permit, it would not be desirable to go into detail here concerning the manner in which the data have been derived. Suffice it to say that they have been taken from calculations of pH according to the equation of Henderson[9] as used by Hasselbach[10], using a definite value, 6.10, as estimated by Haggard and Henderson[11] to represent the negative logarithm of the expression K_1, or $\frac{K}{\lambda}$, where K = the dissociation constant of carbonic acid and λ = the degree of dissociation of $BHCO_3$ into B^+ and HCO_3^-. Thus, in this chart pH has been obtained from the equation

$$pH = 6.10 + \log. \frac{BHCO_3}{H_2CO_3}.$$

$BHCO_3$ values are expressed in terms of millimolecular concentration (1 millimol of $BHCO_3$ = 2.24 volumes per cent of bicarbonate CO_2).



Normal and abnormal variations of the ($BHCO_3$) and pH values in arterial and venous human whole blood. The arterial conditions are indicated by the solid curves, venous by the broken curves. ($BHCO_3$) and pH values are represented with rectangular co-ordinates, and the diagram is simplified by omitting (H_2CO_3) and CO_2 tension values.

An examination of the chart shows nine areas formed by the intersection of the vertical lines representing the maximum and minimum of the normal pH range with the oblique lines representing the variations of $BHCO_3$ and pH of the blood under normal and abnormal conditions. In the brief explanation of the conditions represented by these nine areas which follows, we should ever bear in mind that an increase in the ratio $\frac{BHCO_3}{H_2CO_3}$ means an increased pH or a tendency toward alkalosis whereas a decrease in the ratio represents a lowered pH or a tendency toward acidosis.

Area 1. Uncompensated Alkali Excess. In this condition the $BHCO_3$ is increased above the normal without a parallel increase in H_2CO_3. The result is an increase in the ratio $\frac{BHCO_3}{H_2CO_3}$ and therefore in pH. The condition occurs after overdoses of sodium bicarbonate and from loss of gastric HCl

caused by obstruction of the pylorus. Tetany frequently accompanies this condition.

Areas 2 and 3. Uncompensated CO_2 Deficit. In this condition the H_2CO_3 is decreased without a loss in $BHCO_3$. Thus, as in area 1, there is an increase in the ratio $\frac{BHCO_3}{H_2CO_3}$ or an abnormally high pH. This condition results from voluntary or involuntary over-ventilation of the lungs, the latter occurring at high altitudes. If the CO_2 deficit is large, tetany may result.

Area 4. Compensated Alkali or CO_2 Excess. Here both the $BHCO_3$ and the H_2CO_3 have been increased above normal, thereby leaving the ratio $\frac{BHCO_3}{H_2CO_3}$ unchanged. Consequently, the pH remains normal. The condition represented by this area may have been due to a primary increase in $BHCO_3$, in which case it would be called compensated alkali excess, or it may have been the result primarily of an increase in H_2CO_3 or compensated CO_2 excess. In either case, the result would be the same. This condition may occur after the administration of bicarbonate or in emphysema.

Area 5. Normal Acid-Base Balance. In this condition the values for $BHCO_3$, H_2CO_3 and pH are all normal. As indicated in the chart the normal pH range is 7.3 to 7.5 Recent studies have shown that the normal variation is even less than this. As stated above, the normal pH lies between pH 7.35 and 7.43, thus making area 5 even smaller than shown in the chart.

Area 6. Compensated Alkali or CO_2 Deficit. This condition occurs as a result of a decrease in the available alkali of the blood accompanied by a corresponding fall in the H_2CO_3 or, visa versa, a primary fall in the H_2CO_3 may be followed by a proportional fall in $BHCO_3$. Thus, the ratio $\frac{BHCO_3}{H_2CO_3}$ remains unchanged and a normal pH is maintained. This condition occurs in diabetes, in nephritis and in the diarrheal acidoses of infants. It may also occur as a result of CO_2 deficit at high altitudes.

Areas 7 and 8. Uncompensated CO_2 Excess. Here we have a condition resulting from a retardation of the respiratory excretion of CO_2. Consequently, there is an increase in the H_2CO_3 of the blood with a resulting decrease in the ratio $\frac{BHCO_3}{H_2CO_3}$. This means a lowered pH. This condition is most frequently observed in cases of cardiac decompensation accompanied by dyspnoea.

Area 9. Uncompensated Alkali Deficit. In this condition there is a definite "uncompensated acidosis." For example, in the terminal stages of diabetes the alkali reserve of the body is greatly depleted due to the elimination of base in combination with diacetic acid and beta-hydroxbutyric acid. This lowering of $BHCO_3$ results in a marked fall in the ratio $\frac{BHCO_3}{H_2CO_3}$ and a low pH results. Also in nephritis, in ether anesthesia and in certain types of cardiac cases, we may see an uncompensated alkali deficit. When this condition occurs it is usually accompanied by coma.

Thus we may express the true acid-base condition of a patient in terms of Van Slyke's areas and have thereby a definite understanding of whether the condition is normal or abnormal and, if the latter, whether the particular condition is compensated or uncompensated and, further, whether an acidosis or an alkalosis exists.

Conclusion. In this short paper we have attempted to outline briefly the mechanisms by which the neutrality of the blood and tissues is maintained and to show how conditions of acidosis and alkalosis may develop when there is an upset in the normal acid-base equilibrium of the blood. The time at our disposal will not permit a discussion of the functions of the kidney and of ammonia in preventing an upset in normal acid-base equilibrium. The clinical aspects of acidosis will be treated by the other speakers in this symposium.

BIBLIOGRAPHY

[1]Van Slyke, D. D., Austin, J. H., and Cullen, G. E.: J. Biol. Chem., 53, 277, (1922).

[2]Van Slyke, D. D.: J. Biol. Chem., 48, 153 (1921).

[3]Austin, J. H., and Cullen, G. E.: Medicine, 4, 275 (1925).

[4]Doisy, E. A., Briggs, A. P., Eaton, E. P., and Chambers, W. H.: J. Biol. Chem., 54, 305 (1922).
[5]Gürber: Maly's Jahresb., 25, 165 (1895).
[6]Van Slyke, D. D., and Cullen, G. E.: J. Biol. Chem., 30, 343 (1917).
[7]Doisy, E. A., Eaton, E. P., and Choupe, K. S.: J. Biol. Chem., 53, 61 (1922).
[8]Austin, J. H., Cullen, G. E., Hastings, A. B., McLean, F. C., Peters, J. B., and Van Slyke, D. D.: J. Biol. Chem., 54, 121 (1922).
[9]Henderson, L. J.: Ergebn. Physiol., 8, 254 (1909).
[10]Hasselbach, K. A.: Biochem. Zietschr., 78, 112 (1917).
[11]Haggard, H. W., and Henderson, Y.: J. Biol. Chem., 39, 163 (1919).

ACIDOSIS, ALKALOSIS AND DEHYDRATION

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ST. LOUIS

In the course of normal metabolism, large quantities of acids are formed in and eliminated from the body. These acids are chiefly carbonic, lactic, phosphoric, and sulphuric. In order that the blood and other body fluids may preserve their normal reaction (that of faint alkalinity corresponding to pH 7.40) which is essential for health and life, the greater part of these acids, with the exception of carbonic acid, as soon as formed and while remaining in the body, must be almost completely neutralized by base of the cells, intercellular fluids and blood plasma. Release of base for this purpose must not be attended by any appreciable change in acidity, and excretion of the excess acids must not remove from the body fixed base (i. e. Na, K, Ca or Mg) in an amount sufficient to cause a negative base balance. In health this does not occur, and it is surprising with what little variation the body fluids maintain their normal hydrogen ion, electrolyte and total osmolar concentrations. The normal blood plasma, for example, is made to adhere rather strictly to the following composition:

	Average
B Cl = 550-600 mgs. %	NaCl = 100.0 M. eq. B^+
$BHCO_3$ = 200-250 mg. %	$NaHCO_3$ = 25.0 M. eq. B^+
H_2CO_3 = 40 mm. Hg = 3 vols. %	CO_2
pH = 7.35-745	
Protein = 6.5 — 7.5 per cent =	15.0 M. eq. B^+
Inorganic P = 3.5 —5.5 Mg. % =	2.0 M. eq. B^+
Inorganic S = 1.0 —2.0 Mg. % =	1.0 M. eq. B^+
B. lactate = 15.0-20.0 Mg. % =	2.0 M. eq. B^+
Residual electrolyte (BR) =	6.0 M. eq. B^+
Total fixed base (Na + K + Ca + Mg) =	151.0 M. eq. B^+
Dextrose = 80-120 mgs. %	
Urea = 10-20 mgs. %	
H_2O = 93-94 gms. per 100 cc.	
Total osmolar concentration = 320 osmolar mM	

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The H^+ ion concentration depends upon the relative concentrations of H_2CO_3 which dissociates into H^+ ions as follows:

$$H_2CO_3 \rightleftharpoons H^+, HCO_3$$

and $BHCO_3$ which dissociates into OH ions:

$$BHCO_3 \rightleftharpoons B{+}HCO_3$$

$$H_2O \rightleftharpoons \overline{OH}, H^+$$

$$\rightarrow \overline{H_2CO_3}$$

Whenever the ratio $\frac{BHCO_3}{H_2CO_3}$ is about 20/1 the H^+ ion concentration equals pH 7.40.

The "defensive" mechanisms capable of preventing changes in reaction are as outlined below:

(1) **Buffer action:** The conversion of "strong" acids or alkalies (dissociating to a large extent into H^+ and $\overline{OH}$ ions) into "weak" ones (which do not dissociate much).

(a) $BHCO_3$: If relatively strong acid, such as lactic, diacetic, or hydrochloric are allowed to react with a bicarbonate salt, such as sodium bicarbonte, the following reaction will take place:

$$Na^+, \overline{HCO_3} + H^+, \overline{Cl} \rightleftharpoons Na^+, \overline{Cl} + H_2CO_3$$

As long as sodium bicarbonate remains in excess, no great acidity will develop because of the "weakness" of carbonic acid. In the normal body fluids $NaHCO_3$ is maintained at a concentration of approximately 2.0 — 2.5 gms. per liter (equivalent to 250-300 cc. N/10 acid per liter).

(b) H_2CO_3: If strong alkali, such as sodium hydroxide, is allowed to react with an excess of carbonic acid, sodium bicarbonate, a much weaker alkali than sodium hydroxide, will be formed:

$$Na^+, \overline{OH} + H_2CO_3 \rightleftharpoons Na^+, \overline{HCO_3} + H_2O$$

(c) Phosphate: $\frac{B_2HPO_4}{\overline{BH_2PO_4}}$ At the normal

body fluid reaction pH 7.40 the ratio of dibasic to monobasic phosphate is 4:1. At a pH of 6.0, the ratio is 1:9. It is thus evident that a relatively small shift in hydrogen ion concentration attends the almost complete conversion of the dibasic salt to the monobasic form, or vice versa, the results of neutralization with strong acid, or alkali.

The chemical reactions involved in these transformations are as follows:

(1) $Na_2HPO_4 + HCl \longrightarrow NaH_2PO_4 + NaCl$
(2) $NaH_2PO_4 + NaOH \longrightarrow Na_2HPO_4 + H_2O$

The buffer effect of inorganic phosphate in the blood plasma and intercellular fluids is not great, owing to its small concentration. It is of more significance within the cell, where its concentration is considerably higher.

(d) Protein: Because of its structure, protein can combine with either acid or alkali, due to its amino (NH_2) and carboxyl (COOH) groups. At the normal body reaction, protein behaves as an acid and binds base. Its value as a buffer in blood plasma or lymph, while appreciable, is not of great significance, because of its relatively small concentration. In the fixed tissue cell, however, as well as in the erythrocyte, it is of very great importance. Hemoglobin, while shifting in reaction from pH 7.40 to 7.00, releases a relatively large amount of its base. Since the membrane limiting both the erythrocyte and fixed tissue cell is relatively impermeable to passage to or fro of the cations, base so released by protein can be of help as buffer to acid only after passage of freely permeating anions into the cell from the lymph or plasma. That this process occurs and is of great importance in the normal transfer of carbonic acid from the tissues to the lungs has been shown particularly by the work of Van Slyke.[1]

(2) **Respiratory Activity**: By means of the buffer mechanisms cited above, gross changes in H^+ ion concentration are prevented. They do not prevent, however, large fluctuations in the $BHCO_3/H_2CO_3$ ratio, which are automatically attended by physiologically significant shifts in H^+ ion concentration. When this ratio, which is normally 20/1, decreases (acidosis) due to reduction in $BHCO_3$ with or without actual increase in H_2CO_3, a normal ratio may again be restored by hyperventilation, which causes a more rapid loss of carbonic acid through the lungs. If, on the other hand, the ratio is increased (alkalosis) due to increase in $BHCO_3$, slow, shallow breathing tends to diminish loss of carbonic acid and therefore aids in maintaining a normal ratio.

Respiratory activity, therefore, may be looked upon as the fine adjuster of acidity.

(3) **Renal Activity**: It is obvious that the buffer and respiratory defenses would sooner or later be overtaxed if acid excess continued. Normal renal activity, however, aids immensely during periods of "acidosis" by providing a means of excretion of excess acid bound to relatively small amounts of "fixed" base, thus conserving buffer substance. On the other hand, during periods of alkali excess, the normal kidney is capable of excreting $NaHCO_3$ in five times the concentration of the normal plasma sodium bicarbonate.

(a) Regulation of urinary pH (Gamble[2]): The normal kidney is able to secrete urine as acid as pH 5.0 or as alkaline as pH 8.0. At the latter reaction, there is no free acid present with the exception of carbonic acid which remains constant at a concentration equal to that in the venous blood of the kidney (i. e. about 4-5 volumes per cent); phosphate is present as the dibasic salt, and $BHCO_3$ is present in a concentration equivalent to 15 gms. of $NaHCO_3$ per liter. At pH 5.0 considerable amounts of the weaker organic acids are unneutralized (e. g. approximately 5% diacetic, 20% of B-oxybutyric, etc.) phosphate is in the form of the monobasic salt and $BHCO_3$ is almost absent (.015 gms. per liter).

(b) Substitution of ammonia for fixed base. In addition to practicing fixed base economy in times of need by regulation of acidity, the normal kidney also has the ability to manufacture ammonia (probably from urea, a neutral substance) and substitute it to a large measure for the fixed bases bound to acids coming to the kidney for excretion.

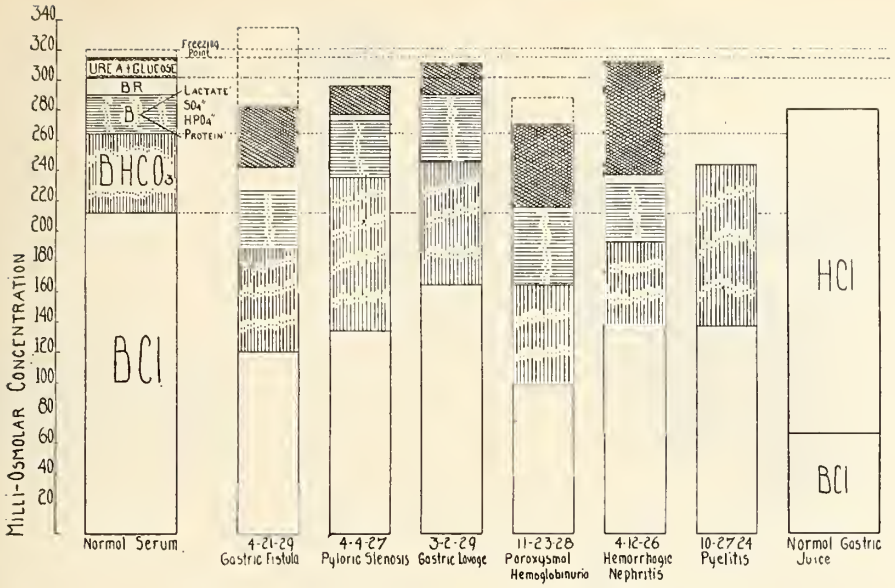


Chart 1.

Types of Alkalosis due to Loss of Gastric Juice.

Chemical Changes due to Loss of Gastric Secretions by Fistula, Lavage, or Vomiting.

$$Na^+, \overline{Cl} + NH_4^+ \longrightarrow \overset{+}{N}H_4\overline{Cl} + Na^+$$

The conserved fixed base, in this instance the Na^+ ion, will remain in the blood, leaving the kidney largely as $NaHCO_3$.

In disease factors may operate in such a manner as to overcome the defensive mechanisms of the body and to lead to serious or fatal changes in the composition of the body fluids, which we often speak of as acidosis, alkalosis or dehydration. The immediate etiological factors responsible for the production of the more common and important forms of acidosis and alkalosis are outlined below:

TABLE I

ACIDOSIS

(Tendency towards or actual reduction of ratio $\frac{BHCO_3}{H_2CO_3}$

I. **Increase of H_2CO_3** Due to abnormal respiration or circulation. (Depressed breathing, high CO_2 content of inspired air, pulmonary atelectasis, venous stasis.)

II. **Decrease of $BHCO_3$**

A. Replacement of HCO_3 because of increase of other anions.

1. **Lactate ion:** Due to its increased formation or insufficient removal (stenuous muscular exertion, convulsions, hypo-oxidation because of poor circulation due to anoxemia or anhydremia).
2. **Cl:** Due to over administration of HCl, NH_4Cl, $CaCl_2$ or NaCl or to insufficient urinary excretion.
3. HPO_4: Due to over administration or
4. SO_4: insufficient urinary excretion.
5. Diacetate ion: Due to abnormal

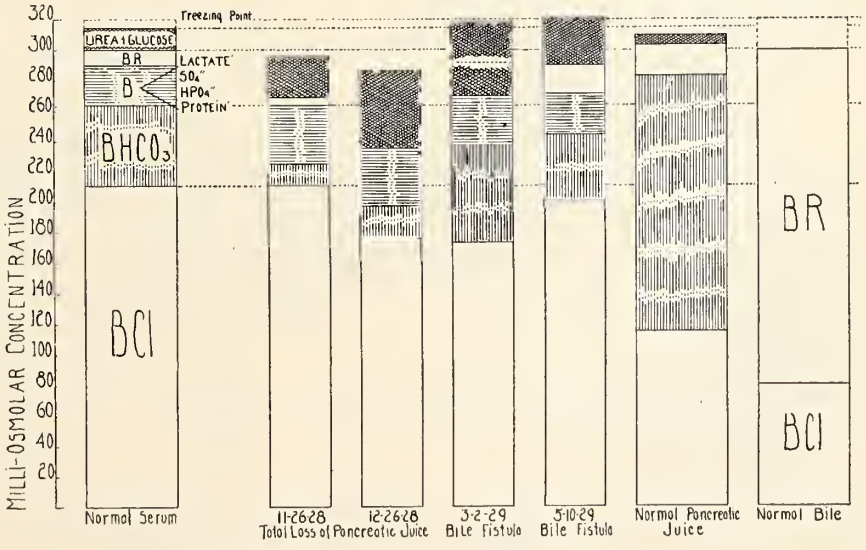


Chart II.

Types of Acidosis Due to Loss of Pancreatic Juices.

Chemical Changes due to loss of Pancreatic Juice and Bile by Intubation Fistula.

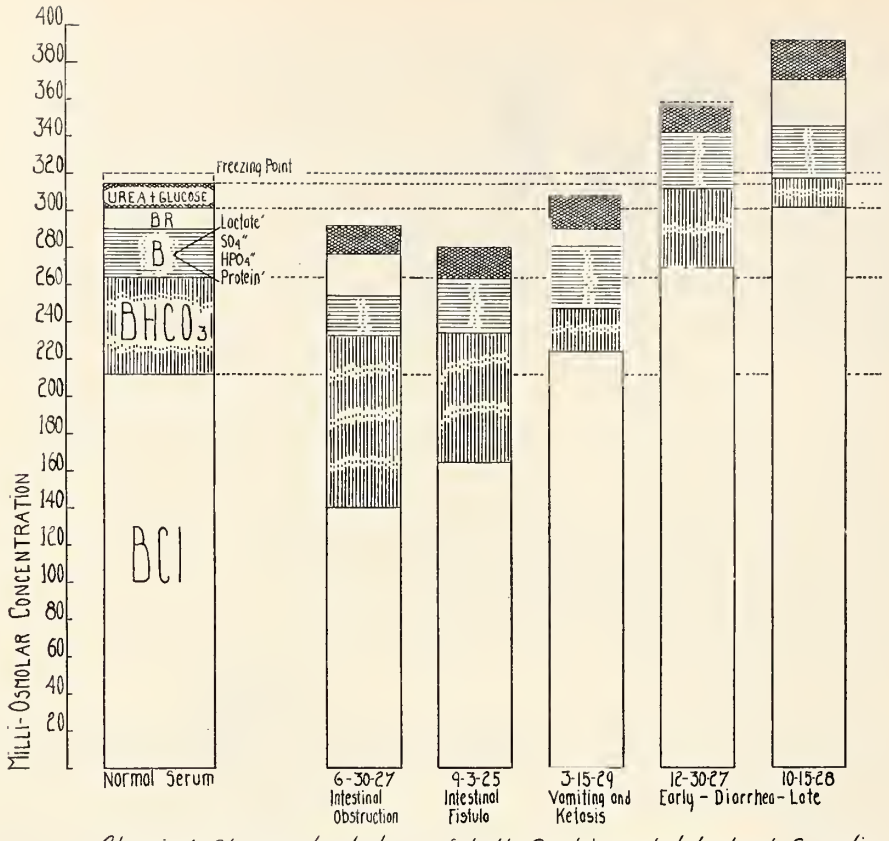


Chart III.

Types of Chemical Change (Alkalosis or Acidosis) due to loss of both Gastric and Intestinal Secretions.

Chemical Changes due to Loss of both Gastric and Intestinal Secretions.

6. Beta-oxybutyrate ion: fatty acid: glucose oxidation.
7. Salicylate ion: Due to over administration or insufficient urinary excretion.

B. Loss from body of $BHCO_3$:
1. By way of intestinal tract. Failure of reabsorption of alkaline digestive juices because of obstruction, fistula, or diarrhea.
2. By way of urinary tract (polyuria, kidney damage).

ALKALOSIS

(Tuesday towards or actual increase of ratio $\frac{BHCO_3}{H_2CO_3}$)

I. **Increase of $BHCO_3$**
- A. **Accumulation** of administered alkali
  1. Over dosage
  2. Failure of urinary excretion
     a. Pathological: Due to kidney damage.
     b. Physiological: Due to diminished plasma fixed base.
- B. **Replacement** of other anions by HCO_3
  1. Cl: Due to loss of gastric juice by vomiting, lavage or fistula.
  2. Lactate, diacetate and Beta-oxybutyrate during recovery from acidosis under certain circumstances.

II. **Decrease** of H_2CO_3 by hyperventiation.
- A. Voluntary.
- B. Involuntary: Due to stimulation of the respiratory center by inflammation, pressure, or fever, or psychic disturbances, including hysteria.

It should particularly be noted (Charts I, II, III and IV, Table I) that the chemical changes leading either to acidosis or alkalosis are in turn usually dependent on such factors as loss of gastro-intestinal secretions caused by vomiting, diarrhea or fistula, and to circulatory or renal insufficiency. When a number of such factors are simultaneously at work, the resultant type of "acidosis" or "alkalosis" may be a very complex one. Frequently changes in the direction of acidosis are balanced by changes in the direction of alkalosis so that either or both may be masked, and it is sometimes only by careful chemical examination of the blood and other body fluids that we may fully appreciate what is taking place. (Chart V).

As a result of such studies, our present conceptions of the pathogenesis and treatment of the more common and important forms of acidosis and alkalosis are as follows:

Acidosis Associated with Severe Diarrhea of the Cholera Infantum Type

Severe watery diarrhea tends to produce changes in the direction of acidosis (see Chart IV) because of: (1) extensive loss of body water, (2) loss of body salts and (3) starvation. The mechanism is as follows: (1) **Loss of water—anhydremia—dehydration:** Loss of water from the blood leads

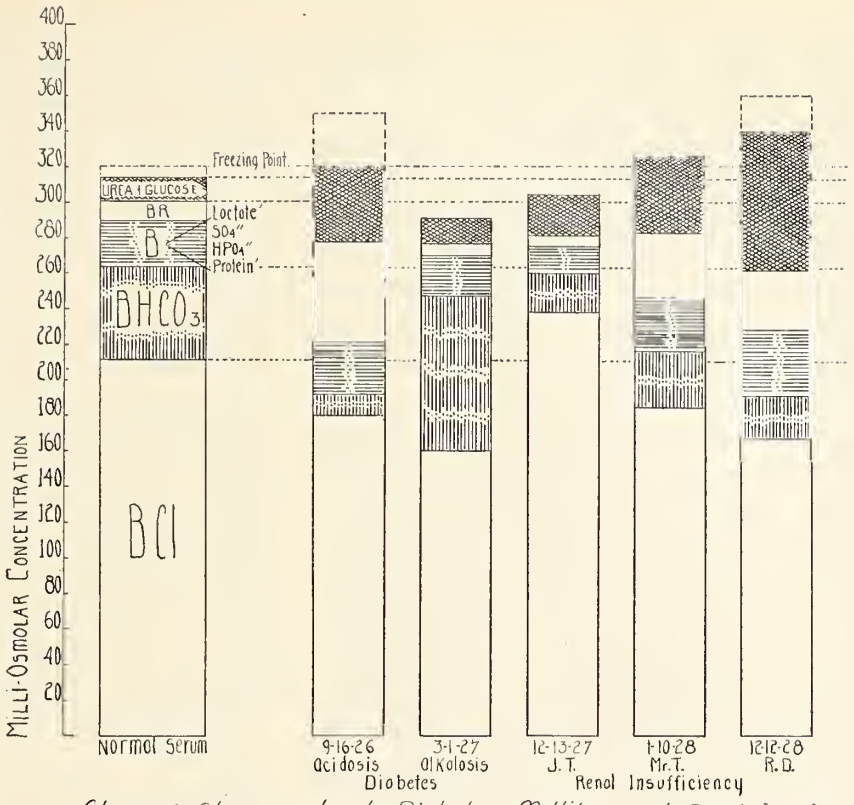


Chart IV.

Chemical Changes due to Diabetes Mellitus and Renal Insufficiency.

Chemical Changes due to Diabetes Mellitus and Renal Insufficiency.

to reduction in blood volume, which in turn leads to reduction in the volume of blood flowing through vital organs in a given time. Such circulatory insufficiency leads to anoxemia which favors the accumulation of lactic acid, and also leads to diminution of urinary excretion, which favors retention of such anions as Cl, HPO_4 and SO_4. Increase in all four anions occurs largely at the expense of HCO_3 which is displaced from combination with base. As a result the ratio $\frac{BHCO_3}{H_2CO_3}$ tends to diminish because of decrease in the numerator and increase in the denominator.

(2 **Loss of Body Salts:** Associated with the failure of water reabsorption by the intestine, there also occurs a failure of reabsorption of the salts of the digestive juices. In the entire combined secretions of the nor-

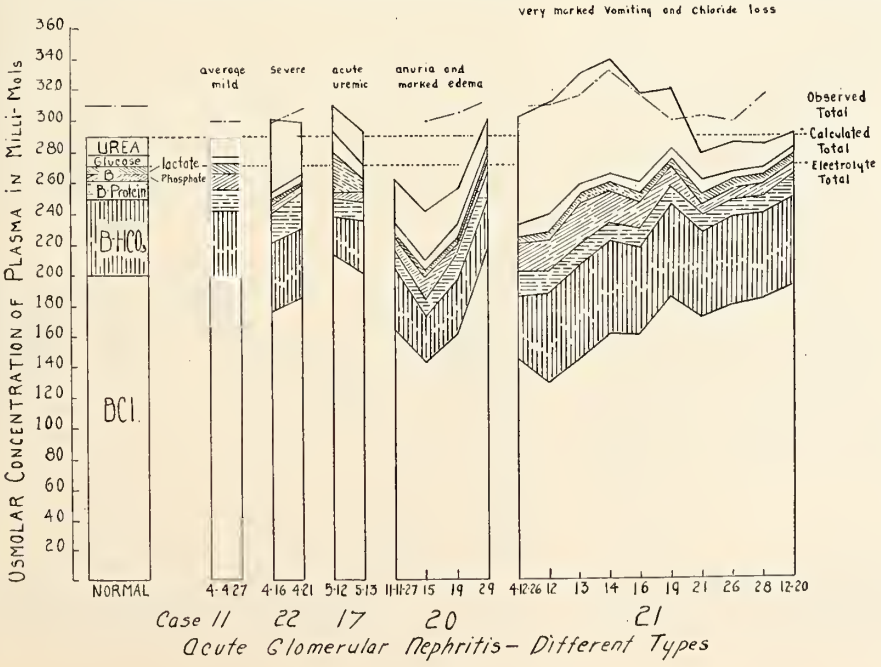


Chart V.

Complex Chemical Changes (Case 21) $BHCO_3$ decrease due to enormous retention of phosphoric acid and reduction of total base masked by loss of HCl in vomitus. Very marked variation of individual solutes with normal total osmolar concentration.

mal gastro-intestinal tract the excess of fixed base over fixed acid is apparently no greater than that of the plasma or lymph. A similar ratio exists in the normal and diarrheal stool, according to Hoag[3]. The total amount of excess of fixed base over fixed acid is increased in a diarrheal stool, however. Metabolism, during periods of both starvation and adequate caloric intake in the form of the usual diet, is such as to leave an excess of fixed acid over fixed base bound for excretion. Renal activity, however, is normally such as to compensate by excreting more fixed acid than base. During periods of severe diarrhea accompanied by marked oliguria, acid excretion relative to base retention must diminish. In addition, during such periods evidence of kidney damage appears not only in the presence of considerable amounts of albumen and large numbers of casts in the urine, but also in the diminished urinary acidity and ammonia concentration relative to the concentration of fixed base. Furthermore, in the most severe forms of watery diarrhea, it would seem to us at least that there occurs a greater loss of alkaline pancreatic juice than acid gastric juice, possibly due to the diminished secretion of the latter. Without such a qualitative change, however, loss of digestive juices coupled with normal or abnormal metabolism, restricted mineral intake, and renal insufficiency due to kidney damage or simply to oliguria, would lead to reduction in $BHCO_3$.

(3) **Starvation:** Aside from the failure to replenish minerals lost from the body in the stools and urine, with starvation there also occurs more rapid destruction of body tissue with increased liberation of such acids (relative to fixed base) as phosphoric and sulfuric. In addition, the organic ketone acids may accumulate if carbohydrate starvation becomes sufficiently pronounced. Ketosis, however, is much more commonly associated with bacillary dysentery than it is with diarrhea of the cholera infantum type due either to enteral or parenteral infection.

Based on such a conception of the pathogenesis of the acidosis associated with severe diarrhea, the logical treatment would seem to be the following: (1) dilution of the blood in order to restore its volume and flow so that the accumulated lactate ion may be disposed of in a normal fashion and release its base for combination with carbonic acid; (2) production of diuresis, so that accumulated anions such as phosphate, sulfate and chloride may be excreted in combination with ammonia, and thus release base for restoration of $BHCO_3$; (3) more rapid restoration of $BHCO_3$ in the very severe cases by administration of that salt as such; and (4) whenever possible direct removal of the cause of the diarrhea.

Oral administration of fluids often fails to relieve anhydremia and dehydration because of the associated vomiting as well as diarrhea. In the more severe cases, repeated parenteral administration is necessary. Tap or distilled water, even though sterile, cannot be used because if given subcutaneously or intraperitoneally it would be extremely irritating, and if given intravenously it would cause hemolysis. Perhaps the most widely used method for parenteral administration of fluids is that described by Blackfan[4]—the intraperitoneal injection of "normal" or physiological salt solution (sterile .85% NaCl in distilled water). Such a solution is isotonic with the normal body fluids and therefore does not lead to hemolysis and is non-irritating even though given repeatedly and in large amounts into the peritoneal cavity, from which it is rapidly absorbed into the blood stream. When severe watery diarrhea persists, however, salt solution administration alone obviously will not be sufficient to relieve marked acidosis if anhydremia and oliguria with renal insufficiency persist. (See Chart VI.)

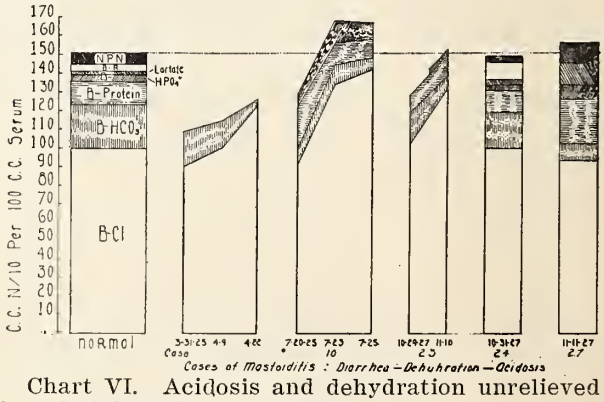


Chart VI. Acidosis and dehydration unrelieved by administration of Ringer's Solution.

In such instances both anion and cation will be retained in the body and the plasma chloride concentration may reach enormous values (e. g. 900 mgs. per cent NaCl). Such increase in salt concentration and osmotic pressure in the blood may lead to further loss of plasma $BHCO_3$. The urine, for example, becomes more alkaline (Schoenthal[5]). In addition, it is probable that increased secretion of pancreatic juice richer in $BHCO_3$ also occurs. (Hartmann and Elman[6]).

Isotonic dextrose (6%) solution possesses some advantages over physiological saline. The solute (dextrose) can be stored as glycogen or oxidized to furnish energy and relieve ketosis, if present. It does not tend, therefore, to increase permanently the osmotic pressure and cause further excretion of $BHCO_3$. A disadvantage is its occasional tendency to cause abdominal distention when injected intraperitoneally. This disadvantage may be overcome if the glucose is sterilized in the dry state (Grulee[7]) before it is dissolved in the sterile distilled water.

The combined use of physiological salt and dextrose solution is often more effective in producing diuresis and thus securing the effect of renal activity than is the administration of either alone. When used in conjunction with each other, it is customary first to fill the abdomen with the saline solution and then to inject hypertonic (10-20%) dextrose solution intravenously, in a dosage of 20-30 c. c. per kilo of body weight.

In the event, however, that sufficient $BHCO_3$ is not restored by the maximal dilution of the blood and increase in renal activity obtainable by such methods, alkali may have to be introduced more directly into the body. Administration by mouth is unreliable because of the uncertainty of absorption in the presence of vomiting and diarrhea. Parenteral administration requires considerable care both in the preparation of the solution and in dosage. For intravenous injection, a solution may be made most simply as follows: weigh out on a clean filter paper taken from the inside of a package 5 gms. of Na HCO_3 removed from a clean package by means of a metal spatula, previously flamed, and dissolve in 100 cc. previously cooled sterile distilled water. Such a solution, while not absolutely sterile, can safely be given intravenously. For subcutaneous or intraperitoneal administration, however, the solution not only must be sterile, but must also be approximately isotonic and adjusted to the correct reaction, or else it will be too irritating. Since boiling decomposes the bicarbonate salt into the much more caustic carbonate, the sterilization must be accomplished by Berkefeld filtration. A satisfactory method of preparation is as follows: Make 1½% (isotonic) $NaHCO_3$ in distilled water, add a few mgs. phenol red indicator, sterilize by Berkefeld filtration and before using bubble carbon dioxide through the solution until the color changes from red to orange.

The usual dosage of alkali administered in any of the ways mentioned above is 0.5 gms. per kilo of body weight. This is equivalent to about one-fourth the normal $NaHCO_3$ content of the body fluids. After the administration of such an amount, a plasma CO_2 content of 15 volumes per cent would be expected to increase to about 30 volumes per cent. A larger dosage, should diarrhea cease simultaneously, might precipitate serious or fatal alkalosis by increasing the ratio $\frac{BHCO_3}{H_2CO_3}$ too much (i. e. $BHCO_3$ is doubled or tripled almost instantaneously while H_2CO_3 can be increased only by depressed breathing—a much slower process. On the other hand, should profuse diarrhea continue, further administration of alkali would be required.

Despite persistent diarrhea, by the continued judicious combined administration of saline, dextrose and alkali, it is usually possible to keep the acid-base and water balances more or less normal. (See Chart VII.)

It must be admitted, however, that sometimes this is very difficult to accomplish without frequent chemical examinations of the blood.

Results equally good, if not better, have been obtained without the necessity of blood chemical examinations, through the use of

a single "combined solution" of the following composition:

Na lactate	= 25 m. eq. B^+
Na Cl	100 m. eq. B^+
KCl	5 m. eq. B^+
$CaCl_2$	2.5 m. eq. B^+

This solution supplies the chlorine ion if needed, sodium is balanced by potassium and calcium, the sodium lactate is converted at a relatively slow but still sufficiently effective rate into $NaHCO_3$, which may be retained if needed or excreted if not, and because of its hypotonicity it tends to dilute the body fluids and promote diuresis when given in sufficient quantity. It should be administered subcutaneously, intraperitoneally or intravenously in amounts sufficient

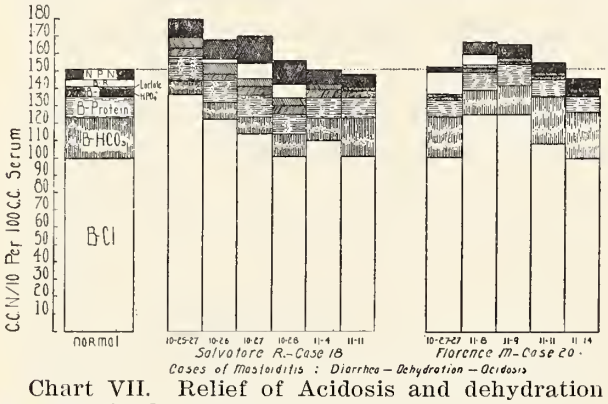


Chart VII. Relief of Acidosis and dehydration by combined administration of sodium bicarbonate, dextrose and Ringer's solution.

to maintain elasticity of the skin. Alkalosis need not be feared if urinary secretion is reestablished and kidney function is more or less normal. If marked circulatory failure persists, however, sodium lactate may not be converted rapidly enough into $NaHCO_3$ and the latter will have to be given in addition for more immediate effect. The method of preparation of a concentrated form of this solution is as follows:

METHOD OF PREPARATION OF COMBINED SOLUTION NO. 1

(Designed to supply water, BCl, $BHCO_3$ and antiketogenic effect, as needed in the restoration of lost body fluids.)

Into a liter volumetric flask, measure 60 cc. C. P. Lactic Acid (e. g. Mallinckrodt C. P. Lactic Acid 85%).

Add a small amount of dry phenol red indicator (sufficient to make color change easily perceptible and

Neutralize with strong carbonate free NaOH (e. g. saturated NaOH from which sodium carbonate has settled out on standing).

Then add 150 grams of NaCl
10 grams of KCl and
5 grams of $CaCl_2.2H_2O$

Make to mark with freshly distilled water. Boil for 30 minutes to hydrolyze the lactic acid anhydride present; reneutralizing with strong NaOH as often as the solution becomes acid. Bring back to original volume with distilled water, filter and place in test tubes, autoclave at 15 lbs. for 30 minutes and seal from air by drawing out the test tube. Rubber stoppered vials may be used; if so the air should be aspirated with a fine needle and syringe before sterilizing, or else the stoppers will be blown out on heating.

Before using, the solution is diluted 25 times (e. g. 4 cc. to 100, 8 cc. to 200, etc.), with fresh, sterile, distilled water. It may then be given intravenously, subcutaneously or intraperitoneally.

It must be borne in mind that the above measures are expected only to relieve dehydration and acidosis (or alkalosis, as we shall see later) and are not expected to stop diarrhea. They are often life-saving measures, however, during the period of severe water and mineral loss. Removal of the cause of the diarrhea is of course the ultimate aim, and includes treatment or removal of the foci of infection and proper feeding. Blood transfusion constitutes one of the most effective means of aiding in the establishment of immunity to infection and is particularly valuable in the athreptic infants with diminished plasma volumes due to diminished plasma protein.

Diabetic Acidosis

From detailed blood chemical studies (Hartman and Darrow[8]) the following conception of the pathogenesis of diabetic acidosis has been gained:

(1) **Role of dehydration**: As the ability to oxidize glucose diminishes, hyperglycemia develops, which is followed by glycosuria. Excretion of large amounts of sugar requires a large urine volume. For a while increased water intake compensates for polyuria, but sooner or later dehydration results. Occasionally (particularly when coma intervenes) a decided decrease in fluid intake contributes to such dehydration, but frequently dehydration occurs despite a continued large water intake. Such dehydration seems referable chiefly to loss of electrolyte from the body. To begin with, the mineral content of the cells probably tends to be minimal because of the failure of the cells to maintain their normal supply of glycogen (c. f. Gamble, Ross and Tisdall[2]). Also the continued polyuria in itself seems to lead to an appreciable loss of BCl and $BHCO_3$. Such

excretion may be the result of an attempt to keep the osmotic pressure of the blood from becoming too high, due to increase in glucose. Continued excretion of diacetic and B-oxybutyric acids leads to loss of fixed base from the body. Diminution of extracellular water (lymph and plasma water) occurs in favor of intracellular water when acidity increases because of a shift of anions with water in accordance with the principle of the Donnon equilibrium (c. f. Van Slyke, Wu and McLean[11]). If vomiting becomes marked, to reduction of fluid and mineral intake will be added loss of fluid and mineral in the form of gastric (and intestinal) secretions. As a result of such factors, dehydration and particularly anhydremia may become extreme and approach in magnitude the desiccation seen in infants with "cholera infantum." In turn, circulatory and renal insufficiency result and lead to $BHCO_3$ reduction as discussed previously and subsequently.

(2) **Role of Ketosis:** Incomplete oxidation of fat leads to ketosis with frequently considerable accumulation of diacetic and B-oxybutyric acids in the body fluids. As mentioned in the beginning, as long as such relatively strong acids are in the body, they must be fully neutralized by base. Base for this purpose is at first entirely supplied by $BHCO_3$ which is consequently reduced. When reduction of $BHCO_3$ is not followed by proportional reduction of H_2CO_3 (i. e. when acidity actually increases and "uncompensated" acidosis is present) automatically phosphate and protein begin also to yield base. Renal activity tends to conserve such base by excreting a large part of the anions bound to the H_- or NH_{4-} ions. Such a defense, however, even in the presence of a normal urine volume and dietary intake, is not perfect, and eventually permits extensive loss of electrolyte from the body. BCl and $BHCO_3$ suffer the greatest diminution.

Based on such a conception of the pathogenesis of diabetic acidosis, the logical treatment should include the following:

(1) Very rapid or immediate relief of increased acidity in those cases in which acidosis is extreme and death is feared.

(2) Complete restoration to normal of altered electrolyte, water and total osmolar concentrations of the body fluids, which includes
   a. Addition of electrolyte (particularly BCl and $BHCO_3$) and water.
   b. Reduction of glucose.
   c. Abolition of ketosis.

(1) Restoration of pH and $BHCO_3$: Although sufficient insulin administration with resultant glucose oxidation leads eventually to increase in the $BHCO_3$ content (and consequently pH) of the body fluids (see Chart VIII), such relief of acidosis may be too slow to prevent death in the most severe cases (c. f. Hartmann and Darrow[8]).

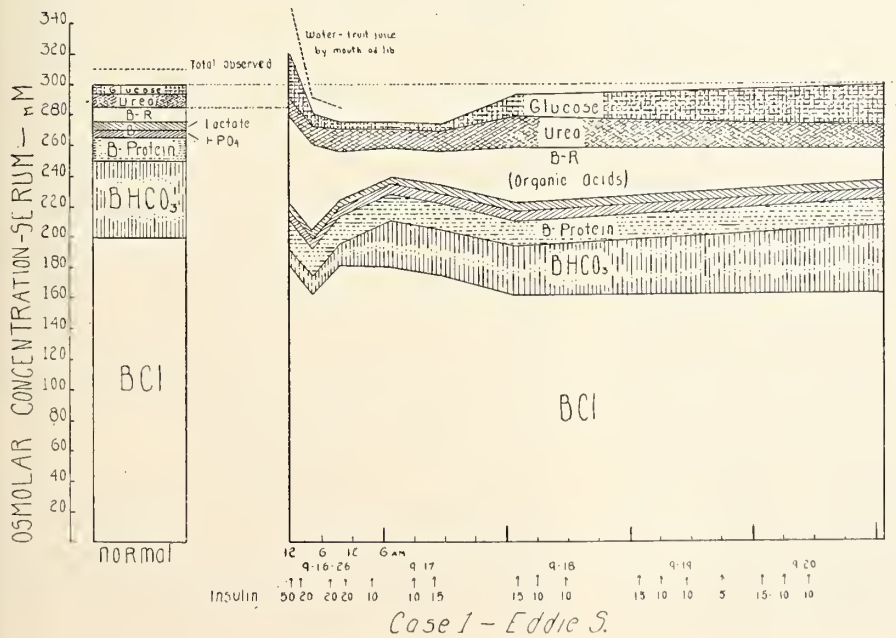


Chart VIII.

Slow recovery from diabetic acidosis because of failure to give $BHCO_3$ or its equivalent.

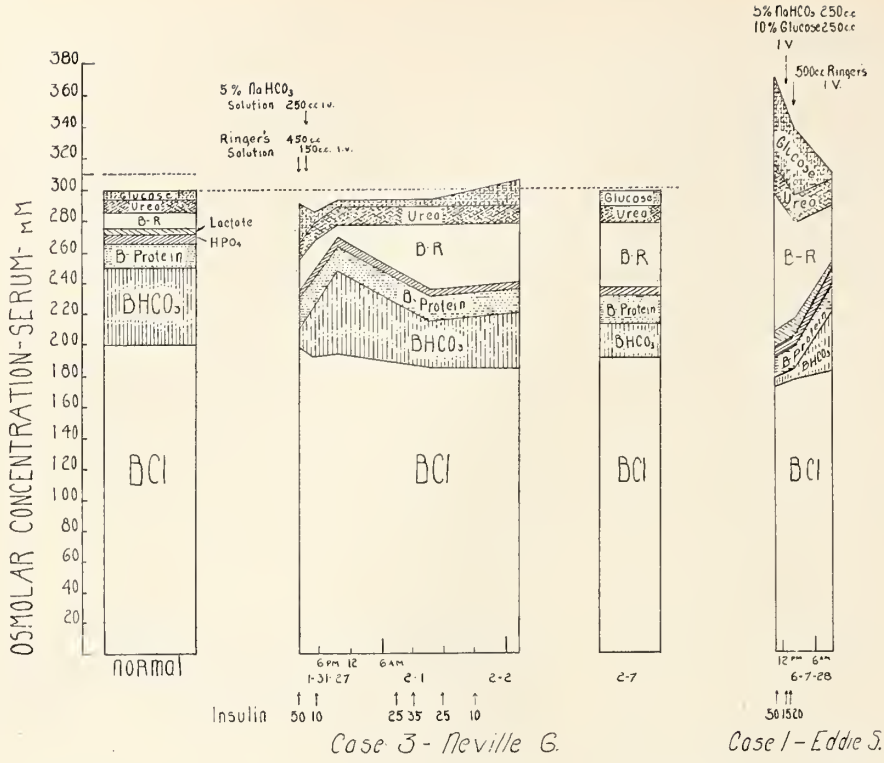


Chart IX.
Rapid recovery from diabetic acidosis with aid of $NaHCO_3$.

In the presence of very marked reduction in plasma $BHCO_3$ (e. g. to 15 vols. per cent or less) particularly when marked insufficiency of circulation and renal activity are present, administration of $NaHCO_3$ is indicated. (See Chart IX.)

A safe yet effective dosage is 0.5 gms. per kilo of body weight (roughly one-fourth the normal entire body content) which is most easily given intravenously in 5 per cent solution prepared as outlined above. In contrast to "diarrheal acidosis" alkali need not be repeated in diabetic acidosis if the other measures indicated are properly carried out.

(2) Complete chemical restoration of body fluids: electrolyte and water addition is best accomplished by subcutaneous or intraperitoneal administration of Ringer's solution, which furnishes the Cl ion together with Na, K and Ca in proper proportions. Such fluid is given in an amount sufficient to restore the lost turgor of the skin. Ketosis is abolished by the repeated administration of insulin. The first administration should be a combined intravenous and subcutaneous injection. The customary dosage of each is 1-2 units per kilo of body weight. Subcutaneous insulin administration should then be repeated every four hours (dosage equals 1 unit per kilo of body weight) until ketosis disappears. Ordinarily this is synonymous with disappearance of diacetic acid from the urine as tested for with 10 per cent ferric chloride solution. Rarely significant amounts of ketone bodies are present in the blood when absent in the urine. Since frequently excess glucose in the body disappears with even the production of hypoglycemia before ketosis is completely abolished, it is safer to combine glucose administration with insulin administration if frequent observations of the blood sugar concentration are impossible. One-half to one gram of glucose for each unit of insulin should be more than sufficient, since invariably the glucose content of the body is considerably elevated. Such glucose may be given by mouth or parenterally. When ketosis has been entirely relieved, glucose administration should be discontinued, and insulin given in smaller dosage every six hours until glycosuria ceases and the blood sugar returns to normal. At this stage the usual patient is ready for his regular diabetic diet.

We have had no opportunity as yet to note the effects of "combined solution" administration on diabetic acidosis. We should expect, however, that its administration would render $NaHCO_3$ and Ringer's solution

administration unnecessary and would be distinctly safer.

Nephritic Acidosis

In the later stages of severe glomerular or diffuse nephritis "acidosis" is almost always present, frequently to a very marked degree (Chart IV). It tends to persist and is really the only form of severe acidosis which may be difficult to recognize by physical examination alone. The underlying cause for $BHCO_3$ reduction in the body fluids is the renal insufficiency which develops as nephritis progresses. Such renal insufficiency operates by permitting abnormal retention of acids and excessive loss of fixed base (c. f. Hartmann and Darrow[9]). Acid retention consists chiefly of phosphoric and sulfuric acids. Very rarely retention of unidentified "organic" acid is indicated. Loss of fixed base occurs as a result of progressive inability of the damaged kidneys to make and substitute ammonia for fixed base and to secrete strongly acid urine. In addition, BCl continues to be excreted into the urine even though considerably reduced in the blood.

Intervening symptoms, such as vomiting, diarrhea, "uremic" convulsions and circulatory failure complicate the blood picture. Marked vomiting causes loss particularly of gastric juice and tends to elevate $BHCO_3$. (See Chart V.) Diarrhea would increase acidosis as described previously. Convulsions and circulatory failure would favor accumulation of lactic acid.

In considering the logical treatment of nephritic acidosis it must first be stated that mild acidosis not only seems to do little harm, but actually may be of benefit in preventing symptoms of tetany (favored by reduction of serum calcium) and hindering formation of edema. On the other hand, however, severe acidosis leads to excessive dehydration and contributes significantly to the clinical picture of "chronic uremia" and demands vigorous treatment. Since the underlying cause of the acidosis is the inability of the kidney to conserve sufficient fixed base during the excretion of acid, and since there is no satisfactory way of increasing kidney efficiency, treatment should consist of reducing to a minimum the amount of acid to be excreted and to increase fixed base intake relative to intake of fixed acid.

A diet with a high "alkaline ash" is essential. On such a dict alone moderately severe acidosis may be relieved. It is sometimes necessary, however, to add extra alkali to the diet, and during periods of very marked acidosis, alkali, Ringer's solution, and glucose may have to be given parenterally, as described previously in the treatment of acidosis associated with severe diarrhea and dehydration. It must be remembered, however, that the damaged kidneys have lost their ability to concentrate alkali also and that over alkalinization leads readily to severe alkalosis. The value of "combined" solution in the treatment of nephritic acidosis has not yet been fully determined.

In addition to the measures outlined above, oral administration of calcium acetate is of value in reducing inorganic blood phosphate and in raising blood calcium. A dosage of 1 to 2 grams three times daily has been very effective when administered to an 8-year-old boy with very marked renal insufficiency associated with rickets and infantilism (Schoenthal and Burpee[10]).

Other Forms of Acidosis.

In addition to the clinical types of acidosis just described, more rarely other forms are encountered. Associated both with acute bacillary dysentery and certain types of respiratory infections, severe acidosis is sometimes seen, apparently due principally to ketosis plus dehydration. Administration of alkali to the very severe cases, Ringer's solution and glucose (with or without added insulin) individually, or "combined" solution by itself relieves this type of acidosis very promptly. Extensive skin burns are also freuently followed by marked acidosis. Products of tissue destruction plus "shock" with circulatory failure seem responsible for the $BHCO_3$ reduction. The usual "shock" therapy, morphine plus Ringer's solution intravenously, is usually sufficient to relieve such acidosis. More rarely severe acidosis is seen following ingestion of toxic quantities of methyl alcohol or bichloride of mercury. Detailed information of resulting chemical

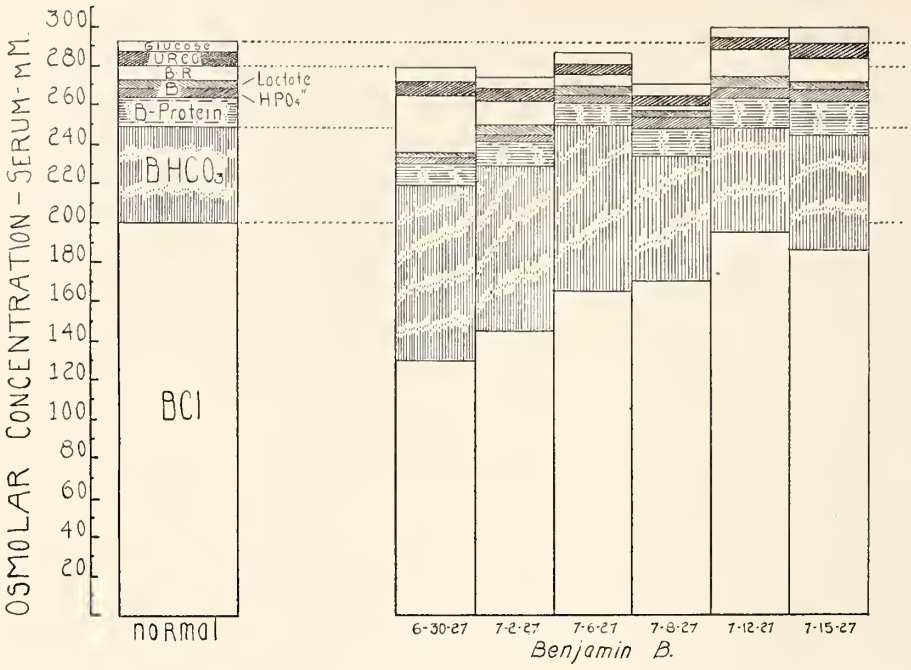


Chart X.
Effect of BCl in rehaving alkalosis and dehydration associated with intesinal obstruc-

changes in the blood in such conditions is lacking, but at present alkali, glucose and fluid administration (or administration of "combined solution") seem indicated in the treatment of them. In the types of carbonic acid acidosis (see table) indications are to aid circulation and restore normal pulmonary ventilation.

Alkalosis

Alkalosis, the condition in which the ratio $\frac{BHCO_3}{H_2CO_3}$ is increased or tends to be increased, may result from either increase in the numerator or decrease in the denominator. Under ordinary circumstances, when alkali is given by mouth in the usual therapeutic dosage, accumulation in the body fluids does not occur, since the normal kidney is able to excrete sodium bicarbonate in a concentration of approximately 15 gms. per liter. Overdosage with accumulation occurs readily, however, when severe kidney damage is present, (Hart and Rivers)[11] or when the electrolyte content of the body fluids has been reduced (Hartmann and Smyth[12]). In the latter condition retention of $BHCO_3$ by the kidney is to be looked upon as a normal physiological reaction designed to keep the total fixed base or electrolyte content of the body fluids at its normal value. Such a condition is brought about chiefly by loss of gastric juice (through vomiting, lavage or fistula) in which loss of the fixed anion Cl', greatly exceeds B^+ which remains in the blood as $BHCO_3$. Prolonged loss of gastric juice, therefore, leads in itself to alkalosis with low total electrolyte concentration due to reduction of BCl. (See Chart I.) The clinical conditions chiefly responsible for such loss of gastric juice are pyloric stenosis, gastric fistula, gastric dilatation, high intestinal obstruction and pyelitis.

During periods of alkalosis of this type, the urine is very poor in fixed base, is distinctly acid (i.e., contains little or no $BHCO_3$) and is free from chloride. The acids excreted are either free or bound to ammonia. Occasionally diacetic acid is present. It can be seen, therefore, that except for the absence of chloride such urine is very similar to the urine secreted during periods of acidosis. If alkali is given to such patients, it will be retained in the body, increasing alkalosis, until the fixed base level has been restored to normal. If, on the other hand, fixed base is given in combination with chloride, as Ringer's solution or sodium chloride, for example, the fixed base level will be restored without increase in alkalosis, and excretion of $BHCO_3$ will occur just as rapidly. In addition physiological saline or Ringer's solution restores the chlorine ion which is also reduced. (Chart X.)

Frequently, as acidosis is being recovered from, $BHCO_3$ seems to "over shoot" the

mark, with the development of some alkalosis. Such abnormal increase in $BHCO_3$ seems referable to reduction of total electrolyte content, the HCO_3 ion being retained in combination with fixed base as long as there is a deficiency in the other anions (particularly Cl'). Such alkalosis does not tend to develop when administration of Ringer's solution or its equivalent is used in conjunction with other measures for the relief of acidosis (e. g. insulin in the treatment of diabetic acidosis).

Excessive breathing leads to reduction of carbon dioxide tension in the blood and body fluids, and therefore tends towards alkalosis. Alkalosis severe enough to produce tetany may be readily produced by voluntary hyperventilation (Grant-Goldman[13]). Involuntary hyperventilation producing similar changes is seen particularly associated with abnormal stimulation of the respiratory center by pressure or inflammation. Periods of excessive breathing are not uncommonly seen in hysteria and in post-encephalitic states. Anoxemia, the result of high altitude, leads to hyperventilation and alkalosis. In cardiac failure, circulatory failure usually masks the effect of hyperventilation produced by anoxemia and acidosis is more frequently encountered than alkalosis. Fever is almost invariably accompanied by hyperventilation. In addition, increase in temperature without change in the $\frac{BHCO_3}{H_2CO_3}$ ratio leads to increase in pH (alkalosis) because of the different effect of temperature on the degrees of dissociation of $BHCO_3$ and water.

The logical treatment of alkalosis should include (1) immediate relief of tetany, if present; (2) restoration of normal pH; (3) removal of excess $BHCO_3$; (4) restoration of electrolyte if deficient; (5) removal of the original cause for the development of alkalosis.

Tetany may be considered due to an imbalance of the following groups of ions:

$Na^+ + K^+ + OH$ = irritant ions
$Ca^{++} + Mg^{++} + H^+$ = depressant ions

Relief of tetany should follow, therefore, either decrease of the irritant or increase of the depressant ions. The following methods of treatment have been found effective.

(1) Breathing of carbon dioxide: the tetany of hypoparathyroidism induced by voluntary hyperventilation may be readily relieved by the rebreathing of expired air. Increased CO_2 tension resulting in increase of H^+ (and presumably also increase in calcium ionization) and decrease of OH follows, and is responsible for the disappearance of the manifestations of tetany. When prolonged breathing of carbon dioxide is necessary the use of the compressed mixtures of carbon dioxide and oxygen are of value, as ogyxen is then also adequately furnished. If tightly fitting masks are used a mixture of 5-10% CO_2 in air is effective. If a poorly fitting funnel is employed, 30% CO_2 in oxygen may be used.

(2) Administration of Mg^{++} — intramuscular injection of magnesium sulfate has a prompt effect in relieving tetany. The customary dosage is 0.2 gm. per kilo of body weight (= 2 cc. of 10% anhydrous magnesium sulfate). Since magnesium has a decidedly depressant effect on respiration, however, it is safer to give this amount in two divided doses, with an interval of 20-30 minutes between injections.

(3) Administration of calcium: When given intravenously in a dosage of ¼ to ½ cc. of 5% solution per kilo of body weight, calcium chloride increases immediately total and ionized blood calcium and promptly relieves tetany without depression of respiration. The solution is so irritant, however, that sloughing results if it is injected subcutaneously. When given by mouth, the chloride half of the salt is more fully absorbed than the calcium, and leads to reduction in plasma $BHCO_3$ and pH. Calcium chloride by mouth is much more effective than calcium lactate. Certain proprietary preparations of calcium, such as Upjohn's calcionates and Sandoz' calcium gluconate, also seem superior to calcium lactate. Calcium gluconate may also be administered subcutaneously or intramuscularly without irritation.

(4) Other measures: Administration of HCl or NH_4Cl by mouth has an effect similar to that of $CaCl_2$. Irradiation with ultraviolet rays tends to increase blood calcium and may relieve tetany. Administration of the parathyroid substance, parathormone, also raises blood calcium and relieves tetany.

Reduction of pH follows administration of CO_2,HCl or the acid producing salts NH_4Cl and $CaCl_2$. The latter three substances also reduce $BHCO_3$ by neutralization. Reduction of the latter may also be secured by excretion into the urine in response to increase in plasma electrolyte resulting from administration of physiological saline or Ringer's solution. "Combined" solution has a similar effect, despite the fact that, because of its sodium lactate content, it is a potential alkalinizer. Because of its BCl and water content, it enables the kidney to excrete $BHCO_3$ at a more rapid rate than it is formed from B lactate. (Hartmann and Elman[8]). In the presence of renal insufficiency with alkalosis its use would seem contraindicated, however.

In addition to the "emergency" measures outlined above, it is extremely important to relieve the original cause of the tendency toward development of alkalosis, if possible. This usually means preventing loss of gastric juice by surgical means, discontinuing administration of alkali or preventing hyperventilation.

BIBLIOGRAPHY

[1]Van Slyke, D. D., Wu, H.. and McLean, F. C.: Studies of Gas and Electrolyte Equilibrium in the Blood: V. Factors controlling the Electrolyte and Water Distribution in the Blood. J. Biol. Chem., 56:804 (July), 1923.

[2]Gamble, J. L., Ross, G. S., and Tisdall, F. F.: The Metabolism of Fixed Base During Fasting. J. Biol. Chem., 57:633 (Oct.), 1923.

[3]Hoag, L. A., and Marples, E.: Treatment of Dehydration. Proc. Soc. Exper. Biol. and Med., 26:374 (Feb.), 1929.

[4]Blackfan, K. H., and Maxey, K. F.: Amer. J. Dis. Child., 15:19, 1918.

[5]Schoenthal, L.: Acid-Base Metabolism. Effects of Administration of Salt and of Restriction of water. Amer. J. Dis. Child., 37:244, 1929.

[6]Hartmann, A. F., and Elman, R.: The Effects of Loss of Gastric and Pancreatic Secretions and the Methods for Restoration of Normal Conditions in the body. J. Exper. Med., 50:387, 1929.

[7]Grulee, C. G., and Sanford, H. N.: Use of Dextrose Intraperitoneally in Infants and Young Children. Amer. J. Dis. Child., 36:434, 1928.

[8]Hartmann, A. F., and Darrow, D. C.: Chemical Changes Occurring in the Body as the Result of Certain Diseases: III. The Composition of the Plasma in Severe Diabetic Acidosis and the Changes Taking Place During Recovery. J. Clin. Invest, 6:257 (Oct.), 1928.

[9]Hartmann, A. F., and Darrow, D. C.: Chemical Changes Occurring in the Body as the Result of Certain Diseases in Infants and Children: II. Acute Hemorrhagic Nephritis: Sub-acute Nephritis: Severe Chronic Nephritis. J. Clin. Invest., 6:127 (Aug.), 1928.

[10]Schoenthal, L., and Burpee, C.: Renal Rickets (in press).

[11]Hardt, L. L., and Rivers, A. B.: Toxic Manifestations Following the Alkaline Treatment of Peptic Ulcer. Arch. Inte. Med., 31:171 (Feb.), 1923.

[12]Hartmann, A. F., and Smyth, F. S.: Chemical Changes Occurring in the Body as a Result of Vomiting: Amer. J. Dis. Child., 32, 1 (July), 1926.

[13]Grant, S. B., and Goldman, A.: A Study of Forced Respiration: Experimental Production of Tetany. Amer. J. Physiol., 52:209, 1920.

DISCUSSION

J. J. Waring, Denver: I would like to express the appreciation of the program committee for the loyal response of the members of the State Medical Society to our appeal to take part in this symposium. They have nobly performed a very difficult part, a part which at least one of our committee members appreciates very deeply, because in the past year he has struggled desperately to understand acidosis, and to teach the students at the Colorado Medical School about it. It was partly because of his appreciation of his own inadequacy to understand the thing that he arranged this program, and also because he thought he might get something out of it himself. Every gastroentrologist, every pediatrician, every surgeon, and every medical man is and should be interested in it. I would like to suggest to the program committee that this symposium should be published in Colorado Medicine in one issue. I am sure that this has already occurred to the editor and also that the symposium should be prepared and put together so that any request for one paper will mean that the person requesting it will receive the whole symposium in one reprint. I believe that this will be extremely valuable to us, and should be distributed to any member of our Society who would like to have it in that form. Our thanks are certainly due to Dr. Hartmann. I marvel at his ability to steer his way through extremely difficult chemical situations with such absolute assurance. I would like also to express one other thought: A few years past some of us in Denver fought most bitterly to secure the association of a bio-chemist with the Children's Hospital. We fought, bled and died, and were licked. In recent years the National Tuberculosis Association organized a committee for joint research in tuberculosis. This committee consisted of pharmaceutical firms, pathologists, bio-chemists, histologists, clinicians. The pharmaceutical firms grew enormous quantities of the tubercle bacillus, shipped these cultures to the bio-chemist, who "cracked" the material down into its constituent parts. These parts were sent separately to various individuals for biologic assaying. You have heard Dr. Sabin of the Rocke-

feller Institute, give us a report of some of the important facts already ascertained. This bit of co-operative research work was done by groups of individuals in different parts of the country, all working on a public health problem. A similar association should be in effective operation for the benefit of the individual patient at all times in every hospital, but especially in a children's hospital. For example, a general practitioner will ask the director of the laboratory, "Has my child alkalosis or acidosis, and if so just exactly what should be given and how much?" I think one of the most important things brought out in Dr. Hartmann's discussion is the importance on the staff of a children's hospital of a bio-chemist with a clinical viewpoint. Dr. Hartmann has also stressed the importance of alkalosis, when our attention in the past has been too much concentrated on acidosis.

O. S. Fowler, Denver: First, I want to compliment, and the way he has presented it, what Dr. Hartmann has said. It is the best I ever heard. I want to discuss it from one statement of Dr. Heller, who said "that little can be done in the treatment of kidney insufficiency." Dr. Hartmann has expressed the importance of kidney sufficiency in acidosis and alkalosis. It may be that some of us have been left with the idea that a kidney insufficiency is quite impossible to prevent or cure. In my experience, I can say that kidney insufficiency is the simplest thing, almost, in the body to treat. Now, if that is the case, and kidney secretion is the important thing in both acidosis and alkalosis, then we must direct our efforts to the function of the kidney in every case either medical or surgical. In the preparation for operation, I think our surgical conditions should be divided into two classes; first, the emergency cases—and I mean by emergency cases all cases that must be anaesthetized and operated at once without any preparatory measures. Second, what might be called the chronic cases, all those in which we have time or can take the time to prepare them for the traumatic shock, and every operation is simple trauma. If, in these chronic cases, we put them to bed for three to five days and give them large amounts of water, of salt solution, and of the proper chemicals, we get them in the best possible condition for operation, and then during and after operation, that we do not let up on large quantities of liquid, of salt solution. In serious and all emergency cases, the salt solution should be administered during the operation. You can probably give 2,000 cc.'s during the operation. Following operation I insist that there shall be given from 8,000 to 12,000 cc.'s in the next eighteen hours. Dr. Hartmann says also it is not too much. I have been told for twenty years that it is too much: I have been told that I am water-logging these patients. I have known from the clinical standpoint that I was right, but I have not known why until I heard Dr. Hartmann. If we give small quantities—and some men think them large—of 500 cc.'s, or 1,000 cc.'s, you have not started. In cases of hemorrhagic nephritis, which have been regarded as fatal, I have treated them repeatedly with immense amounts of salt solutions. I have proved in eighteen hours, with large quantities of liquid, that it was not fatal, and so it is true in practically every case of edema that if you give the solution you must first increase the edema, must give it until it is marked, before early edema tends to decrease. If you will give large amounts following operation in all cases, the emergency as well as chronic, you will practically have no case of either edema, suppression of the urine, acidosis or alkalosis. To accomplish they should receive ten to twelve thousand cc.'s the first twenty-four hours and from eight to five thousand on each of the next four days.

GENERAL ANESTHESIA WITH SODIUM AMYTAL

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Through the courtesy of Dr. L. G. Zerfas we have for the past two months been using sodium amytal as a general anesthetic on those of our private patients who would consent, they knowing it was an experiment in anesthesia. Two of the patients received no preliminary medication, nine received a hypodermic of morphine and atropine sulphate noted and seven in addition to the hypodermic, a Chloretone suppository. In each instance the injection was made in the patient's room, given slowly, the rate of injection not exceeding one cc. per minute. On an average four minutes after the intravenous injection of the sodium amytal was begun, the patient was asleep and in from seven to ten minutes was unconscious, the time, and hence the amount of the drug, varying with the individual. These patients were carried so rapidly through the stages of anesthesia that there was no stage of excitement. By the time the patient reached the operating room, about fifteen minutes after beginning the injection, the common reflexes were mostly abolished except occasionally the skin, sphincters and laryngeal. The respirations were shallow, regular and slightly increased in rate, contrasting somewhat to our inhalation anesthetics. Ether seemed to make no noticeable change in the respirations. During the injection there was some drop in blood pressure, and occasionally when surgical anesthesia was produced, some cyanosis. The most noticeable drop, eighty mm., was in patient No. 12, and in this case the presurgical reading was twenty mm. higher than that the day previous. At the completion of the operation, forty-five min-

utes after the starting of the injection, the blood pressure gave the presurgical reading. The most marked cyanosis was in patient No. 7. During injection and surgery the respirations simulated Cheyne-stokes in type. Both these patients were poor surgical risks and showed very slight post-operative shock.

Seven patients showed a fall of twenty mm., two of thirty mm., seven of forty mm., one of fifty mm. and one of eighty mm. of mercury.

These readings are made every few minutes during injection and surgery. In each instance the reading at completion of surgery equaled or slightly exceeded the presurgical reading.

All patients showed slight increase in pulse rate.

The amount of sodium amytal used depended upon the reaction of the patient. Since we were dealing with an entirely new anesthetic, whose lethal dose is not known, and possibly because of our limited supply, we contented ourselves with a fifteen gr. maximum, although twenty-five gr. can be used frequently with safety. I am confident that some of these patients would have stood heavier dosage, producing deeper anesthesia, requiring less and in some instances, no ether. Slight delirium was noted in but one case, suggesting that when heavier dosage is used for more complete anesthesia we are more prone to get delirium.

As observed from the charts, fourteen of the patients were fully awake in five hours. Three of the others were poor surgical risks, their longer period of rest was beneficial and they showed the slightest possible surgical shock. The fourth patient was easily aroused in five hours, responded when spoken to and then dropped back to sleep, fully awake in nine hours. This prolonged stupor tends to passive congestion and its unpleasant sequellae, especially in elderly individuals. For this reason we had our patients moved in bed every half hour, turned from side to side, and at the first signs of returning consciousness got them to breathe deeply. The nurses were instructed to watch the tongue, if it fell back into the pharynx, to immediately elevate it.

Without exception all the patients were highly pleased with their anesthesia and if another anesthetic were necessary they expressed a desire for sodium amytal. All stated that they had no idea when they went to sleep and their first day was most comfortable. It especially appealed to those patients who had taken inhalation anesthetics at some other time. Dread of anesthesia to some patients is worse than the operation. The surgeon can assure his patient that with sodium amytal he can go to sleep in his room, that he will have none of the discomforts he may have experienced or heard about, no post-operative vomiting and none of the anxieties of the first post-operative day.

Naturally eighteen cases are too small a number upon which to base definite conclusions, they do however suggest that:

1. Preliminary medication is essential for the best results with sodium amytal.

2. Relative small doses in combination with some other anesthetic gives an ideal anesthesia.

3. Rate of injection has a direct bearing on fall in blood pressure. Tendency to rise to or slightly above the presurgical reading during surgery.

4. That the general muscular physic and age seems to be a more definite factor in dosage than age.

5. A perfectly quiet induction of anesthesia, the patient being unaware that anesthesia is being induced.

6. No post-operative vomiting.

7. Delirium apparently no more frequent than with other anesthetics.

8. Negligible shock in poor surgical risks.

9. More careful nursing the first day.

10. Complete relaxation with shallow respirations facilitates intra-abdominal surgery.

11. The most immediate post-operative danger is that of respiratory obstruction from the tongue falling back.

12. The intravenous administration of any drug which cannot immediately be removed from the system requires an effective

antidote. Ephedrine and caffeine partially meet this demand.

13. The relative long period of narcosis in some instances may mask post-operative complications, such as hemorrhage.

Judging from these eighteen cases it seems that sodium amytal or some similar barbiturate will occupy a place in surgical anesthesia because of the ease with which surgical anesthesia can be produced and because it can be combined with other anesthetics.

CASE REPORTS

Case No. 1. Mrs. H. M., age 28, weight 120. Operation: D. & C. Cauterization of cervix. Anesthetic: Sodium amytal, gr. VIISS. Ether, ozs. II. No preliminary medication. Regained consciousness 1 hr. after starting sodium amytal. Slept 3 hrs. No delirium. I believe that 12 to 15 gr. would have given complete anesthesia and this patient would not have required any ether.

Case No. 2. Mr. F. C., age 37, weight 125. Operation: Tonsillectomy. Anesthetic: Sodii amytal, gr. XV, ether, ozs. VIII. No preliminary medication. Went to sleep nine minutes after starting injection. No relaxation. Slight delirium for 4 hrs., but did not require medication. Preliminary medication would undoubtedly have eliminated delirium.

Case No. 3. Miss L., age 36, weight 170. Operation: D. & C. Cauterization of cervix. Anesthetic: Sodii amytal, gr. XV, ether, ozs. IV. Preliminary medication. Morphine sulph., gr. 1/6th; atrophine sulph., gr. 1/200 4 hrs. after starting anesthetic. No delirium.

Case No. 4. Mrs. L. D., age 46, weight 215. Operation: Hysterectomy and appendectomy. Anesthetic: Sodium amytal, gr. XV; ether, ozs. VIII. Preliminary medication. Morphine sulph., gr. 1/6th; atropine sulph., gr. 1/150 45 min. before starting injection. Rational 4 hrs 8 min. after injection. No delirium.

Case No. 5. Mrs. S., age 43, weight 156½. Operation: Cholecystectomy and appendectomy. Anesthetic: Sodium amytal, gr. XIII; ether, ozs. V. Preliminary medication. Morphine sulph., gr. 1/6th; atropine sulph., gr 1/200 45 min. before injection. Fully awake 3½ hrs. after starting injection. No delirium.

Case No. 6. Mrs. W., age 31, weight 129. Operation: Curettage and cauterization of cervix. Left oophrectomy. Anesthetic: Sodii amytal, gr. XII; ether, ozs. IV. Preliminary medication. Morphine sulph., gr. 1/6th; atropine sulph., gr. 1/200 45 min. before starting injection. Patient moved on table. Awake after 5 hrs. No delirium.

Case No. 7. Mr. C., age 67, weight 170. Operation: Suprapubic drainage of bladder. Anesthetic: Sodium amytal, gr. XII. Poor risk, obesity, nephritis and anemia. Residual 40 ozs. with stones. Preliminary medication. Morphine sulph., gr. 1/6th; atropine sulph., gr. 1/150 1 hr. before injection. Patient had Cheyne-Stokes' type of respiration, and marked cyanosis. Fully awake 2 hrs. 15 min. after anesthetic. No delirium.

Case No. 8. Mr. H. D., age 26, weight 143½. Operation: Closure of fecal fistula. Anesthetic: Sodium amytal, gr. XIII; ether, ozs. VIII. Preliminary medication. Morphine sulph., gr. 1/6; atropine sulph., gr. 1/150 45 min. before starting injection. Patient moved while making incision. Awake 3 hrs. and 30 min. after injection. No delirium.

Case No. 9: Mrs. G., age 40, weight 180. Operation: Reduction fracture both bones right leg. Anesthetic: Sodium amytal, gr. XII; ether, ozs. II. Preliminary medication. Morphine sulph., gr. 1/6; atropine sulph., gr. 1/200 45 min. before starting injection. Highly hysterical. Unconscious in 4 min. with quite marked cyanosis. When attempt at reduction was made, resisted strongly, attendants holding patient. Conscious 1 h. after injection was started. No delirium.

Case No. 10. Mr. Q., age 25, weight 120. Operation: Nephrectomy. Anesthetic: Sodium amytal, gr. XII; ether, ozs. IV. Preliminary medication. Morphine sulph., gr. 1/6; atropine sulph., gr. 1/150 45 min. before injection. Moved with initial incision. Awake 2 hrs. after injection. No delirium.

Case No. 11. Mrs. H. B., age 25, weight 119½. Operation: Appendectomy. Bilateral Salpingectomy. Rectocele and lacerated cervix. Anesthetic: Sodium amytal, gr. XII; ether, ozs. IIISS. Preliminary medication. Morphine sulph., gr. 1/6 atropine sulph., gr. 1/150 45 min. before injection. With incision, patient moved on table, requiring ether. Partially awake 5 hrs. and conscious 9 hours after injection. No delirium.

Case No. 12. Mrs. L. L., age 64, weight 92. Operation: Cholecystectomy and choledochotomy. Anesthetic: Sodium amytal, gr. VIISS; ether, ozs. SS. Patient poor risk. Post-operative condition good considering condition. Preliminary medication. Chloretone suppository 2 hrs. before injection. Morphine sulph., gr. 1/; atropine sulph., gr. 1/150 45 min before injection. Patient showed no shock after surgery. Awake in 7 hrs. No delirium.

Case No. 13. Mrs. L. L., age 64, weight 92. Operation: Exploration common duct, secondary operation. Anesthetic: Sodium amytal, gr. XV. Preliminary medication. Chloretone suppository 2 hrs. and morphine sulph., gr. 1/6; atropine sulph. 1/200 45 min. before injection. Awake in 7 hrs. No delirium.

Case No. 14. Miss K. McC., age 52, weight 160. Operation: Bilateral bunions, Mayo operations. Patient restless and moving during first part of operation. Anesthetic: Sodium amytal, gr. XIII; ether, ozs. VISS. Preliminary medication. Chloretone suppository 2 hrs. and morphine sulph., gr. 1/6; atropine sulph., gr. 1/200 45 min. before injection. Patient moved on table. Fully awake in 3 hrs. No delirium. A poor surgical risk because of cardio-renal changes. No shock.

Case No. 15. Mr. E. E. C., age 48, weight 133. Operation: Closure of fecal fistula. Appendectomy. Anesthetic: Sodium amytal, gr. XV; ether, ozs. V. Patient had chronic bronchitis. At time sodium amytal was started ephedrine sulph., gr. ¾, was given by hypodermic. B. P. systolic 90, diastolic 60. Preliminary medication. Chloretone suppository 2 hrs. and morphine sulph., gr. 1/6; atropine sulph., gr. 1/200 45 min. before injection. Fully awake in 9 hrs. No delirium.

Case No. 16. Mr. C., age 24, weight 135½. Operation: Appendectomy. Anesthetic: Sodii amytal, gr. XV; ether VIISS. Preliminary medication. Chloretone suppository 2 hrs.; morphine sulph., gr. 1/6; atropine sulph., gr. 1/200 45 min. before injection. Restless on operating table. Tossed about bed on return to room, required morphine sulph., gr. 1/6. Fully awake 5 hrs. 15 min. after starting injection. No delirium.

PILONIDAL SINUS

DUVAL PREY, M.D.
DENVER

Pilonidal sinus is the name, applied by Hodges[1] in 1880, to designate a sacrococcygeal sinus or cyst, situated in the midline and upon the posterior surface of the coccyx or lower sacrum, of variable size and frequently containing hair—hence the name, pilonidal or "nest of hair."

The sinus is regularly in the midline, with an even, circular, smooth, external orifice surrounded by normal integument. It may or may not be situated in a dimple-like depression, which classically should contain a clump of hair.

J. W. Warren,[2] who reported the first case to be found in the literature, thought that the etiological factor was an "inverted hair follicle" because of the tendency to find a small tuft of hair protruding from the sinus. Further support was given to this both novel and original, but somewhat superficial, theory by the fact that the lesion is more frequently seen in males than in females and particularly in hairy individuals between 19 and 45 years of age. However, by the time the individual attends the physician complaining of lower sacral pain and discomfort, the original orifice is so distorted by the secondary infection and resultant inflammation that only after the most careful scrutiny can the primary sinus be located. At this time several sinuses will most probably be seen all leading to the same pocket but differing from the original, due to their ragged, indurated openings which are surrounded by granulation tissue. The sinus extends inward and upward toward the median line, ending in a blind pouch which is just external to the sacrum or coccyx. It is lined by stratified cuboidal epithelium containing sweat, sebaceous glands and hair follicles, extending in length from 1 to 6 cms. and ending in a pocket containing sebaceous material, epidermal detritus and hair.

The sac is usually small but may be enlarged due to a secondary infection or irritation following trauma. If one were privileged to see these cases prior to secondary infection or incision, as Stone[3] was successful in doing in a case he describes in a most complete and splendid paper, the cystic contents of the sac and sinus would more frequently contain hair.

Pilonidal sinus occurs most frequently in white males, of a hairy tendency, from 19 to 45 years of age. Negroes do not seem to be susceptible to the lesion, for in carefully reviewing the literature I find no cases among the negroes reported.

The case I wish to report is that of a mulatto girl, 18 years of age, whose complaint consisted of lower sacral pain, discomfort and tenderness, of ten days' duration. She had suffered the same symptoms two years before, at which time she was thought to have been suffering from a boil and was treated by poultices. Family history was negative, and having in mind Stone's case where the lesion occurred in a father and two sons, I was particularly interested in its familial tendency. Her past history was irrelevant; her examination was negative except for an extremely tender, small, red, indurated, fluctuating mass over the posterior portion of the lower sacrum, with two discharging sinuses—one in the midline and the other to the right of the midline. A probe passed inward about two centimeters where it was felt to enter a pocket or pouch. Temporary drainage was instituted to relieve the present inflammation and later a resection en bloc was made of the sinus and sac. Complete recovery occurred by primary union.

This girl being a mulatto, it is an interesting speculation as to whether these cases ever occur in the full-blooded negro. I rather think that they do, but for the reason that the negro is not so likely to request medical attention for an ailment which he considers to be a boil, and also unless our attention is directed by subjective symptoms, we are very likely to overlook the lesion.

I have had no experience with negro babies, so I cannot state whether the sacrococcygeal dimple is as commonly found among

them as it is in the white children. However, in view of the two theories, both of which are at the present time tenable, as to the etiology of this lesion, there is no reason to suppose that pilonidal sinus should not be as common in the negro race as it is in the white race.

The diagnosis of this condition would not be difficult if it were not for that very inflammatory reaction which causes the pain and discomfort necessitating the physician's attendance, or were it not for the misleading, although well-intentioned efforts, of the individual suffering from this affliction, to supply his medical attendant with the diagnosis of common furunculosis and insist upon the immediate lancing of the lesion.

The conditions to be differentiated are fistulo-in-ano, perirectal and ischiorectal abscesses, sacro or coccygeal osteomyelitis, teratomas and implantation cysts.

As an aid to diagnosis, Julius Brams[4] advises the use of lipoidal which he injected into the sinus, and then by means of a roentogram he was able to outline the extent of the cystic cavity. This certainly would be of definite value should there be a question as to the connection of the sinus with the neural canal as occurred in the case reported by Ripley and Thompson.[5] This was a pilonidal sinus extending to and communicating with the arachnoid space in a baby three and one-half months of age. A small discharging sinus was noticed in the sacrococcygeal region, and upon the injection into the spinal canal of 5 c. c. of antimeningococcic serum a thin, brownish fluid, which was thought to be the serum, escaped from the sinus. At subsequent operation it was discovered that there was an absence of the second sacral arch, and the dilated portion of the sinus, or the cyst, was found to be partly within the spinal canal. Hair and sebaceous material were found to be contained within the sac and at post mortem 5 c. c. of methylene blue, which was injected into the spinal canal at the fourth interspace, was recovered from the operative wound.

Theodore Moise[6] reports a case of meningitis associated with spina bifida and pilonidal sinus with complete recovery following drainage.

E. G. Martin[7] encountered a pilonidal sinus which extended through the sacrum into the retrorectal space, and in order that complete removal of the sac might be accomplished, the coccyx and lower end of the sacrum were of necessity resected. This is the only case of this type which has been reported in the literature and it is so unusual that it confutes all possible explanation.

There have been two theories advanced to explain the etiology of this lesion. Streeter[8] believes it to be due to an invagination of the integument for the reason that he found the sinus to be lined by stratified cuboidal epithelium, and the vestiges by columnar epithelium. Therefore, he does not feel that the latter could account for the presence of hair, sweat and sebaceous material within the sinus and its cystic cavity. Mallory[9] contends that the lesion of pilonidal sinus originates from the embryonic medullary vestiges.

My theory is the following: The neural groove is an indentation, or transversely appears as an indentation, of the ectoderm. The neural folds, by the fusion of the neural crests, form the neural tube. At the caudal end of the neural tube, in a 110 m. m. foetus, an epithelial sac is formed which is adherent to the integument. This becomes obliterated, a part forming the filum terminale which is attached to the coccyx and becomes stretched into a solid, slender cord. The sacrococcygeal dimple, as described by Hodges, and seen so frequently in children, seems to be almost attached to the coccyx or sacrum. It seems to me that they are both a result of the original epithelial sac, and that its attachment to the integument represents the dimple, and its cranial portion the medullary vestiges.

Now I suggest that if obliteration does not occur, in this embryonic epithelial sac, we have a sinus connecting with the arachnoid space as occurred in the cases of Ripley, Thompson, and Moise. Should the obliteration occur in its cranial portion, we have the lesion of pilonidal sinus or cyst, while if the epithelial sac is obliterated in

its medial portion, we have the sacro coccygeal dimple of varying depth; or, should obliteration occur normally, we have only a slight indentation of the skin representing the original attachment of the epithelial sac to the integument.

The treatment generally accepted is complete removal of the sinus and its ramifications in their entirety. Formerly it was thought that simple incision and subsequent drainage was sufficient; but experience has proven this to be a faulty conclusion in that recurrences invariably occur, and the sinus continues to periodically become inflamed and drain, until it is completely removed.

It was then suggested that local agents, such as the actual cautery and nitrate of silver, be applied to the sinus tract after splitting it open with the scalpel, but this also proved unsatisfactory for the reason that a ramification of the sinus tract could so easily be overlooked.

If complete removal is done, as it must be, it should be by wide dissection, leaving a deep wound in which it is very difficult to approximate the skin edges except under undue tension. Hemostasis is particularly difficult to obtain and secondary infection is common, due to the fact that one is working in an infected field, for we rarely see these cases except when secondarily involved.

Lynthicum[10] advised the injection of bismuth paste. Others have used methylene blue for the purpose of outlining the sinus and its ramifications and enabling the surgeon to remain outside the borders of the lesion.

Many have advised leaving the wound open, packing it loosely and allowing it to heal by granulation, but against this is the length of time of disability and the extensive scar formation. C. W. Morter[11] closes by suture, leaving a drain at the upper and lower angles of the wound through which he irrigates with Carrol-Dakin solution, principally for the purpose of washing out the blood clots which he feels invariably will form. Lahey[12] advises, after the sinus has been removed en bloc, a counter incision to be made laterally, so that a fat-lined skin flap with a broad pedicle can be transplanted into the center of the wound. This leaves a defect, with its base over the gluteus maximus muscle, which is permitted to heal by granulation. The resultant scar, with its yielding muscle foundation, removes to a large extent the possibility of later trauma.

Colp[13] only lately has advised a more simplified technic wherein, after completely removing the sinus, the skin edges are undermined and freed so that they may be approximated with very little tension. Then by means of lateral interrupted mattress sutures, each skin flap is attached to the posterior sacro coccygeal ligament, obliterating all dead space, and primary union may be obtained.

I feel that primary union is not obtained for several reasons. First, the skin edges are approximated under too great tension. Second, the tracts have not been outlined by injections of a dye. Third, the use of local anaesthesia increases the possibility of infection. Fourth, all dead space is not obliterated. Fifth, proper measures are not taken for obtaining hemostasis. Sixth, the acute inflammation is not allowed to subside by means of an initial drainage with complete removal following at a second operation.

It is therefore suggested that these lesions be incised and drained until all active inflammation has subsided; then by injecting the sinus with methylene blue under pressure, and under general anaesthesia, a wide elliptical incision is made down to the sacrococcygeal ligaments, and the entire block of tissue containing the sinus and its ramifications is removed. The material should be examined at once by an assistant while the surgeon examines the incisional wall for any stains of the methylene blue. Finding that the entire sinus has been removed, great pains should be taken in obtaining hemostasis, both by ligature and hot packs. From this point the Colp technic can be followed, and primary union may be expected.

MEDICAL SOCIETIES

Pueblo County Medical Society

Dr. Philip Work of Denver presented a paper on "Cerebrospinal Meningitis" at the regular dinner meeting of the Pueblo County Medical Society, Oct. 1, in the Congress hotel. Dr. Hubert Work presided at the meeting. Thirty members of the Society attended and the majority took part in an interesting discussion of the paper. Mr. Harvey T. Sethman, executive secretary of the Colorado State Medical Society, spoke on plans for conducting the new executive office and explained new services for members being installed by the State Society.

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Larimer County Medical Society

Dr. W. A. Kickland, president-elect of the Colorado State Medical Society, was the guest of honor at the October meeting of the Larimer County Medical Society. Drs. W. B. Hardesty of Berthoud and Dr. P. J. McHugh reported on the annual meeting of the State Society, as delegates to the State Society. Dr. C. H. Platz, past president of the Wyoming State Medical Society, was also a guest and addressed the Society on "Problems of a State President."

Dr. Maurice Rees, Dean of the University of Colorado Medical School, was the principal speaker. He talked on "Hospital Records" and emphasized that great care should be taken in preparing these records since they are of paramount importance to patient, hospital, and staff. Dr. Rees complimented the Larimer County Hospital as one of the best small hospitals in the United States.

The meeting was preceded by a dinner attended by the members and their wives.

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Delta County Medical Society

The September meeting of the Delta County Medical Society was held in Delta, Friday, Oct. 4, beginning with a dinner at the Delta House at 6:30 p. m. The business session was held at the offices of Dr. W. S. Cleland. Members present were Drs. L. Bast, W. S. Cleland, W. A. Day, A. F. Erich, L. A. Hick, L. L. Hick, H. W. Hazlett, J. C. McConnell, A. E. Miller, H. A. Smith, and C. H. Tidd. Dr. A. C. McClanahan, who was to give the delegates' report of the State Society annual meeting, was ill in Denver. Dr. Cleland talked with him by long-distance telephone and it was arranged that we will hear the delegates' report at the next meeting.

Current correspondence was read, consisting principally of changes in the state by-laws. The paper of the evening was presented by Dr. Smith, entitled "Tonsils and Why." The paper was exceedingly interesting and invoked a good discussion. Dr. Smith returned to his home in Whittier, Calif., on Oct. 6, but expects to return to Delta in August, 1930.

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San Juan Medical Society

The regular meeting of the San Juan Medical Society was held one week early because several of the members planned to go deer hunting on Oct. 12. Dinner was served at the Red Lantern Inn at 7 p. m., Oct. 5.

The business meeting was held at the office of Dr. B. F. Walters, Dr. J. C. Darling, president, presiding. A letter from the Colorado Tuberculosis Association outlining the policy of the Association on tuberculosis clinics was read. A motion was carried that the members do not believe it necessary to conduct a clinic at Durango as there are so few cases of tuberculosis in this part of Colorado.

Dues were increased to $12.00 per year, to provide for the increase voted by the Colorado State Medical Society.

Dr. A. J. Nossaman of Pagosa Springs delivered an interesting account of the State Society annual meeting.

As there was no regular program, general discussion followed on intravenous mercurochrome treatment, coagulation time in tonsillectomy, and endocrine treatment.

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Fremont County Medical Society

The Fremont County Medical Society held its first meeting of the fall and winter season in Florence, Sept. 30. Dr. L. E. Rupert read the paper of the evening, entitled "Unusual Cases of Appendicitis." It was voted that the next meeting be held in Canon City.

Rocky Mountain Orthopedic Club

On September 14 a meeting was held at the home of Dr. Robert G. Packard at which time the Rocky Mountain Orthopedic Club was organized. The following officers were elected for the ensuing year: President, Dr. S. Fosdick Jones; vice president, Dr. H. W. Wilcox; secretary, Dr. H. I. Barnard; treasurer, Dr. Atha Thomas; executive committee, Dr. Robert G. Packard and Dr. Charles Sevier.

The purpose of the organization is to promote in this community interest in orthopedics by monthly meetings and discussions of the different cases. Also to perfect a better co-operation in the management of orthopedic cases, particularly in the charitable institutions.

WOMAN'S AUXILIARY

The first regular meeting of the Woman's Auxiliary of the Denver County Medical Society was held at the Denver General Hospital Nurses' Home, 250 W. Eighth avenue, Monday, September 23, at 2:30 p. m. Mrs. Lorenz Frank, the new president, presided. Other officers whose terms began with this meeting include Mrs. Maurice Rees, first vice president; Mrs. A. J. Markley, second vice president; Mrs. William C. Black, secretary; Mrs. Arnold Minnig, treasurer, and Mrs. C. H. Morian, parliamentarian. The chairmen of the standing committees are Mrs. C. G. Hickey, education; Mrs. C. A. McLaughlin, membership; Mrs. George Johnson, social; Mrs. H. J. Corper, publicity; Mrs. Charles Dorsey, Hygeia; Mrs. D. W. Macomber, program; Mrs. John S. Chase, music; Mrs. W. E. Sunderland, drama; Mrs. H. B. Stein, literary; Mrs. George W. Miel, philanthropic. At the first meeting a most interesting talk was given by Dr. A. J. Markley, and greetings were extended by the past presidents, Mrs. George P. Lingenfelter and Mrs. T. Mitchell Burns.

Board of Medical Examiners

The State Board of Medical Examiners, at its October meeting, revoked the license of Dr. C. L. Van Patten on the charge of habitual drunkenness. He appeals to the courts for a review of the board's action. At the same meeting, the board refused renewal of licenses of Dr. Ira C. Mierley of Denver and Dr. Albert Fawkes, Salida osteopath.

NEWS NOTES

Military Surgeons' Convention

Brig. Gen. William H. Wilmer, United States medical reserve corps, stationed at Johns Hopkins, was elected president of the Association of Military Surgeons of the United States for 1930, at the closing session of the Association's convention in Denver, Sept. 27.

Other officers chosen included Capt. James C. Pryor. chief surgeon U. S. Naval Academy, vice president: Col. Charles R. Reynolds, medical field service, Carlisle, Pa., second vice president; Col. Charles W. Comfort, Connecticut National Guard, third vice president; Surgeon William Colby Rucker, head of Marine Hospital, New Orleans, fourth vice president; Col. J. R. Kean, U. S. A., retired, Washington, secretary; and Maj. Edgar Hume, Fort Benning, Ga., assistant secretary.

Selection of the city for the next annual convention was left in the hands of the Association's Executive Committee, but it was announced at the session that the 1930 meeting probably will be held in Washington, D. C.

The three day convention at the Cosmopolitan hotel was one of the most colorful medical meetings ever conducted in Colorado. Delegates and visitors from foreign countries gave the meeting an international flavor. The largest number of foreign delegates were from Mexico. Thirteen American officers were awarded medals and diplomas as honorary members of the Mexican Association of Military Surgeons by Lieut.-Col. Daniel M. Velez. Colorado men given places on the program included Dr. J. N. Hall, Dr. John S. Chase, Dr. J. W. Amesse, all of Denver, and Dr. Gerald B. Webb of Colorado Springs. Col. Paul C. Hutton, commander of Fitzsimons General Hospital, formally welcomed the delegates to Colorado.

Arrangements for the convention were conducted by a local committee, with Dr. G. P. Lingenfelter as chairman.

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Rock Island Surgeons

Compulsory periodic health examinations for employees of the Rock Island lines have been made a part of the regular routine of the railroad. This was brought out at the annual convention of the Surgeons' Association of the Rock Island Lines, meeting in Denver, Sept. 16.

The railroad is equipped with a special car for giving examinations and so far in 1929, 12,000 employees of the corporation have been served by traveling examiners in addition to those examined by resident surgeons.

Dr. William C. Bane of Denver presided at the opening of the session and welcomed the delegates to Colorado.

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Central Neuropsychiatric Association

Thirty delegates to the eighth annual convention of the Central Neuropsychiatric Association met in Denver late in September and conducted a program featured by Clinics at the Colorado Psychopathic Hospital. Dr. Edward Delehanty of Denver headed the committee in charge of the arrangements. In addition to scientific papers, the delegates heard a talk by Dr. Roger Wolcott, LlD., Dean of the University of Denver Law School, advocating that a course in psychiatry be made a compulsory part of every law school curriculum.

Medical School Enrollment Record

The University of Colorado Medical School has a record enrollment for the 1929-1930 school year. Dr. Maurice H. Rees, Dean, announced recently that 191 regular and twenty graduate students had enrolled. This is ten more regular and five more graduate students than enrolled for the preceeding year, which was itself a record.

The freshmen number sixty-five, more than half of them graduates of the University of Colorado School of Arts and Sciences. Dr. Rees announced that only one change in the faculty of the Medical School has been made this year. Dr. Samuel H. Grey, formerly of Washington University, St. Louis, Mo., replaces Dr. D. P. Seecof as associate professor of pathology. Dr. Seecof has become a member of the faculty of Western Reserve University of Ohio.

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DENVER—Dr. Carroll E. Edson has accepted the invitation to deliver the Shattuck lecture for 1930 before the Massachusetts Medical Society.

TRINIDAD—Dr. C. O. McClure, member of the Las Animas County Medical Society, has been elected city physician of Trinidad. He succeeds the late Dr. G. W. Robinson.

DUPONT—Dr. William A. Bryant, formerly of Keenesburg, has purchased the practice here of Dr. G. D. Hoschouer.

CRAIG—Dr. W. E. Driscoll has opened a private hospital in Craig, rebuilding a large residence for the purpose.

PUEBLO—Dr. W. E. Buck, chief of the City Health Department, has returned after attending the annual convention of the American Public Health Association, held in Minneapolis.

DENVER—Dr. Robert Lewis has been elected national president of the Acacia Fraternity.

FORT COLLINS—Dr. H. Edward Bacon has announced the sale of his practice here. He is moving to Palo Alto, Calif. Dr. I. C. Stucke of Gay Mills, Wis., has taken over Dr. Bacon's practice.

HUGO—Dr. G. M. Gafford has returned to his hospital and practice here after recovering from an illness for which he was treated at the Mayo Clinic.

LOVELAND—Dr. J. A. Matlack of Longmont addressed the Loveland Rotary Club at its October meeting on "The Art of Diagnosis."

DENVER—Dr. and Mrs. D. A. Doty announce the birth of a son at St. Luke's Hospital.

DENVER—Dr. and Mrs. R. T. Ramsey have returned from a trip in the East. Dr. Ramsey has been attending the Clinics of New York, Boston, and other Eastern medical centers.

DELTA—Dr. and Mrs. Lee Bast have returned from a six weeks' trip to Columbia, Mo.

LONGMONT—Dr. J. A. Matlack of the Longmont Hospital staff, captain in the United States Army reserve, has been notified of his promotion to the rank of major.

LITTLETON—Dr. R. K. Hollingsworth has been appointed chief surgeon at the Crook Sanitarium in Jackson, Tenn. Dr. Hollingsworth has moved permanently to Jackson.

DENVER—Dr. George F. Libby of Denver, who has practiced in Colorado for the past twenty-nine years, has recently announced his retirement from medical practice. Doctor and Mrs. Libby will make their home in Victoria, British Columbia, where they have spent their summers for the past ten years.

DENVER—Dr. and Mrs. W. A. Sedwick left Oct. 20 for a trip East and to Cuba, Panama and New Orleans. They will be away about five weeks.

Obituary

Dr. Ralph G. Hersom

Dr. Ralph G. Hersom, member of the Pueblo County Medical Society, died Sept. 20 at his home in La Junta. Dr. Hersom for several years had resided in Pueblo and had recently moved to La Junta to establish his home. Dr. Hersom was born at Belgrade Lake, Me., July 22, 1880. He attended the Farmington, Me., Normal School and the New York College of Pharmacy. He obtained his medical degree from the University of Louisville in 1910 and established his practice in Colorado the same year. Since that time he had been a continuous member of the Colorado State Medical Society, through the Otero County and Pueblo County Medical Societies.

LETTERS TO THE EDITOR

To the Editor:

I wish to inform the subscribers of the Medical Interpreter that I have resigned as editor of this publication in December, 1928, and that I am no longer responsible in any manner for the actions of its promoters.

ALBERT ALLEMANN, M.D.
Washington, D. C.

INTERN HOSPITALS

Through the Council's own representatives, the first complete investigation is now being made of all hospitals approved for interns, or which apparently are eligible for such approval. The inspections are being made state by state, so that all hospitals may be given uniformly careful consideration. The points to which particular attention is being given are as follows:

(a) **Hospital Staff.**—Is the staff composed entirely of reputable graduates of acceptable medical schools, and to what extent are they members of their local, state and national medical societies?

(b) **Pathologist.**—Does the hospital have, on whole or part time, the services of a physician who has had the training required for specialization in pathology? Are the tissues removed at all operations examined by the hospital's own pathologist, or, if examined at all, are they being examined by a technician or other person who has neither medical training nor skill? To what extent does the hospital's own pathologist perform the autopsies; and does he present reports of such autopsies at the hospital staff conferences? Is he the one who, acting directly or indirectly through interns and others, secures the consent of relatives to have autopsies performed? To what extent does he take charge of the clinical-pathologic conferences presented at hospital staff meetings, and to what extent are the conferences interesting and valuable? To what extent is the hospital utilizing the pathologist's services?

(c) **Autopsy Room.**—Does the hospital have its own morgue whereby autopsies can be held which can be easily attended by staff members; where better records can be obtained, and where pathologic conferences can conveniently be held in connection with them, or are autopsies held outside in undertakers' establishments or conducted by coroners?

(d) **The Autopsy Records.**—Are careful records kept of all autopsies and copies filed with the patients' histories? Is a summary of the patient's symptoms and signs, as a routine measure, compared with the causes of death as shown by the autopsy?

(e) **Other Records.**—Are records of all patients kept whereby, at any time, an accurate knowledge can be had showing for any day, week or month the number and type of patients in the hospital and such other information as will at once demonstrate the quantity and variety of material in the hospital and the results of the work done? Do such records clearly demonstrate that the hospital is looking after the interests of its patients and providing for them efficient care?

(f) **Autopsies.**—The mere holding of an autopsy does not fulfil the purposes of the Council's requirement. Unless its full educational value is secured, why go to all the trouble of securing the autopsy? Coroners' autopsies held at distant undertakers' establishments are, as a rule, unsatisfactory because, usually, they can seldom be attended by staff members, and because adequate records are seldom kept and therefore cannot be used in connection with staff conferences.

(g) **Staff Conferences.**—Are staff conferences regularly held weekly, bi-weekly or monthly? Are all deaths given discussion at these conferences and, when autopsies are held, are clinical-pathologic conferences held in connection with them? At these staff conferences, does the pathologist present reports of the tissues examined, showing how many are normal and how many pathologic? Are records of these staff meetings kept giving fairly complete abstracts of what was done? Are the conferences attended by both staff members and interns, and are the clinical observations of each deceased patient compared with the causes of death as revealed by the autopsy?—Dr. N. P. Colwell.

If conducted for these purposes, the staff conference becomes a powerful instrument for the further development of skill in diagnosis—a means whereby treatment in complicated cases will become more and more efficient and whereby attention will be called to any errors in either diagnosis or treatment, so they will not be repeated.

Corporations Cannot Practice Medicine in New York State

The John H. Woodbury Dermatological Institute was convicted of unlawfully advertising to practice medicine and a fine of $100 imposed by the Court of Special Sessions of the first division of the city of New York, Jan. 2, 1908. From that conviction there was an appeal to the appellate division of the Supreme Court of New York, which affirmed that conviction in quite a long opinion, which is published in 124 App. Div. Reports, Supreme Court of New York, 877.

The upper or highest court in New York is their Court of Appeals and there was an appeal taken to that court by the defendant. The judgment of conviction was affirmed and the opinion is in 192 N. Y. 454.—Federation Bulletin.

WYOMING SECTION

President, C. W. Jeffrey, Rawlins
First Vice President, R. H. Sanders, Superior
President-Elect, E. L. Jewell, Shoshoni
Secretary, Earl Whedon, M.D., Sheridan
Treasurer, Evald Olson, M.D., Lovell
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Alternate, J. H. Holland, Evanston
Councilor, C. Y. Beard, Cheyenne
Member of Medical Defense, Earl Whedon, M.D., Sheridan
Chester Harris, Basin
F. A. Mills, Powell

EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT

THE WYOMING TUBERCULOSIS SANATORIUM

During the past few months the editor has received letters from members of the medical profession calling his attention to the conditions at the Basin, Wyoming, Sanatorium.

This is a state institution and, whereas it is not entirely a charity institution, it has and does accept patients who are able to pay for their care.

Attention has been called to the fact that the legislature, during its January and February session, passed certain appropriations for the improvement of this youngest of state institutions, but that for some reason these improvements have not been made by the State Board of Charity and Reforms. This board is made up of the governor, and the four elective state officers; secretary of state, treasurer, auditor and superintendent of schools. Among the improvements provided for is a nurses' home, a residence for the superintendent, a sewer system, etc.

The board has this year co-operated with the Basin sewer system, and made minor improvements, but the other important improvements such as the nurses' home and the superintendent's home are conspicuous by their absence.

In order to be perfectly fair with the governor and the other members of the board, the following letter was written to Governor Emerson and his reply is also printed.

"Sept. 20, 1929.

"Governor Frank C. Emerson,
Cheyenne, Wyoming.

"Dear Governor: I have had several letters from members of the Wyoming State Medical Society asking about the conditions existing at the Wyoming Tuberculosis Sanatorium located at Basin, Wyo., which the state of Wyoming built and is maintaining. The value of this institution is recognized by the medical profession and the general public and credit is freely given for the fine things accomplished by its worthy and valued state institution, the only one of its kind in Wyoming.

"However, many are pointing out that although the last legislature made appropriations of several thousand dollars for improvements such as a nurses' home, physician's residence, etc., these improvements are not being made. We have been informed that the funds for such improvements are on hand and yet the Board of Charity and Reform does not act, and outside of sewer and minor improvements nothing is being done to carry out the wishes of the people as provided in the bi-annual appropriation of the last legislature.

"Kindly write to me as secretary of the Wyoming State Medical Society and editor of the Wyoming part of Colorado Medicine for publication in our medical journal, which is published as a joint journal with Colorado, your position and that of the State Board of Charities and Reform on this matter; and kindly add any comments or reasons you know, or have to offer why these improvements should not be made, I am,

"Yours very truly,

"DR. EARL WHEDON,
"Secretary, Wyoming State Medical Society."

"Sept. 24, 1929.

"Dr. Earl Whedon, Secretary,
The Wyoming State Medical Society,
Sheridan, Wyoming.

"Dear Sir: I have your letter of September 20th concerning the improvement at the Wyoming Tuberculosis Sanatorium.

"You are advised that a constructive program for the improvement of this institution and the grounds surrounding same has been and is now under way. During the present year an extensive program of additions and improvements to several of our state institutions has been carried along. In addition to the general improvement of the grounds at the Sanatorium at Basin, the most important improvement has had attention in the construction of a sewer line to connect with the system of the town of Basin and thereby provide for proper sanitation along this line. Next season attention will be given to the matter of the construction of a residence for the superintendent and a home for nurses, funds for which were provided by the last Legislature.

"You probably know that appropriations are

made for a period of two years and therefore funds will be available for another year for any work that may not have been included in the program carried out during the current year.

"Yours very truly,
"FRANK C. EMERSON,
"Governor."

We do not wish to criticise unjustly the governor and the other members of the board, but the doctors of the state do feel that the board is not recognizing the injustice done the nurses of this institution when they compel these young ladies not only to work all day in an atmosphere charged with tubercular germs, but sleep as well in this institution.

We are wondering if the governor's daughter were one of these if his night's rest would be peaceful?

There is money in the state treasury for these buildings, and frankly we feel it a crime to wait until next year to build these buildings. Weather conditions in the Basin country do not prevent building in the fall and winter and the medical profession of the state most earnestly urge the governor and other members of the board at once to prepare the plans and let the contracts for these buildings which common justice demands and which in turn will release the rooms used at present for nurses' sleeping quarters to be used by additional patients who are on the waiting list and whose lives may be spared by the prompt action of the board.

E. W.

CHANGE OF DATES OF THE WYOMING STATE MEDICAL SOCIETY MEETING

Recently we have received a letter from the genial secretary and general manager, Olin West, of the American Medical Association, calling our attention to the conflict of dates set for the Wyoming meeting at Sheridan, June 23rd and 24th, and the American Medical Society meeting which will be held in Detroit, Mich., June 23rd to 27th.

Now the Wyoming Society would not like to see the meeting of the American Medical Association at Detroit be a failure by reason of all the doctors in the United States attending our meeting and deserting Detroit. Therefore, we will change our dates to July 14th and 15th, but Sheridan will still be the host.

E. W.

NEWS ITEMS

FREMONT COUNTY MEDICAL SOCIETY

The Fremont County Medical Society resumed its monthly meetings, Saturday evening, Oct. 5th. These meetings had been discontinued for the summer vacation period. The meeting was held in Riverton with Dr. A. B. Tonkin presiding.

Dr. E. L. Jewell, of Shoshoni, gave a report of his visit to the Colorado State Medical meeting at Greeley.

Dr. R. J. Luman, of Riverton, presented a very interesting paper on "The Interpretation of Head Pains." A good general discussion followed. Dr. V. A. Mokler of Thermopolis was a visitor. He gave a report of the excellent work Hot Springs County Medical Society is doing with its newly organized system for the collection of delinquent fees.

Dr. T. E. Marshall, chief-of-Staff of the Sheridan County Memorial Hospital, who has, on account of sickness, retired from active practice for the present, is so much improved that he is able to be out and enjoying this beautiful fall weather. His many friends are delighted to note his improvement and hope that he may make a rapid recovery.

* * *

Dr. E. G. Denison and wife of Sheridan have recently returned from an eastern visit. The doctor always takes in the national baseball contest as well as several good football games during the fall.

* * *

A great many Wyoming doctors have been hunting big game during the open season, and if some of the rich eastern doctors could get a taste of what these western boys are enjoying, they would forget about their chicken livers and codfish and understand some of the joys of western life.

* * *

One of the Wyoming doctors recently received the following letter:

"Dear Doc: My wife is somewhat better than when you left here, owing to the fact she can't get no sleep. If you have something to assist her along this line, I won't be home after 4 o'clock.

"Yours respectfully,
"CHARLES GREEN."

We've had no further news now, the lady is progressing.

* * *

Dr. and Mrs. Fred W. Phifer of the Wheatland General Hospital of Wheatland, Wyo., have returned home after spending two weeks visiting eastern clinics.

* * *

Dr. Dwing, physician and surgeon for the Colorado Fuel & Iron Company, located at Sunrise, Wyo., has been transferred to a Colorado location, and Dr. J. W. Graham, formerly of Philadelphia, has taken over the work at Sunrise.

Several of the doctors of the Big Horn Basin have temporarily given up the healing art and have gone out to kill the wary antelope. While reports are incomplete, we heard that at least some were successful, Drs. Chester Harris and J. R. A. Whitlock securing fine heads.

* * *

Dr. Chas. Lane of Elk Basin is expected home soon from a trip East, where he was placing a son in school.

* * *

Dr. J. D. Lewellen and Dr. and Mrs. J. R. A. Whitlock of Powell attended the theater in Billings recently.

* * *

Dr. Evald Olson of Lovell is suffering from a carbuncle on the side of his neck.

* * *

Dr. Harold B. Rae of the Wheatland General Hospital Clinic has returned from a hunting trip with a beautiful five-point deer, which he says he brought down with his own gun.

* * *

Dr. Bert Harris leaves next Sunday to be present at the meeting of the Wyoming Board of Medical Registration. It is understood that the application of some of the M.D.'s who have been practicing in Wyoming without a license will be presented to the board for their action. The course of action for the board ought not to be very hard to find. The registration law uncovered four in Wyoming who had the nerve to take the chance of prosecution under the law for practicing without a license. No prosecution seems to be contemplated and they now have the "bile" to ask the board to give them a license.

* * *

Dr. E. A. Kell of Rawlins, Wyo., past president of the Wyoming State Medical Society, disposed of his practice and property to Dr. J. D. Wilson of Thermopolis, Wyo., and accompanied by Mrs. Kell departed Sept. 21st for eastern Pennsylvania.

After post-graduate work of a year, he intends to specialize in eye, ear, nose and throat.

During his fifteen years' residence in Rawlins, Wyo., Dr. Kell has held several political and honorary posts. Was mayor of Rawlins for two years, organizer and first president of the Rotarian Club; potentate of the Korien Shrine, chairman of the county Republican committee for several years, county physician and county health officer for several years, president of the school board and other minor positions.

The loss of Dr. Kell by the city of Rawlins will be a distinct gain to any community where this public spirited citizen makes his home.

Cancer Mortality Still Increasing

A full monograph on the mortality from cancer is to be published shortly by the Metropolitan Life Insurance Company. This will confirm the reports issued some years ago by the Federal Government and by this company showing that there has been a small but persistent increase in the mortality from cancer within the two last decades. The cancer situation is clearly becoming graver year by year.

When the insurance company studied its cancer mortality data for a twelve-year period (1901 to 1922), it was found that the annual increase in the cancer death rate was seven-tenths of 1 per cent of the average standardized death rate for that period. Now, with the facts for five more years consolidated with those for 1911-1922, it has been found that the annual increase has been over 1 per cent of the average standardized death rate for the seventeen years.

Furthermore, during the shorter period, no marked increase was shown in cancer mortality among females. This was the single hopeful item developed by the former study. In the light of what has happened in more recent years, even this conclusion must be changed, since deaths from cancer for the five years, 1923-1927, increased so markedly among women that a significant upward trend is in evidence between 1911 and 1927. It still holds true that the situation for males is much graver than for females, since the increase among the former has been three times as great as among the latter.

A significant increase is now in evidence for cancer of the stomach and liver, whereas, between 1911 and 1922, only a very slight and in no way significant rise was observed.

Between 1911 and 1922 the upward trend of the death rate of cancer of the breast among white women was confined to the age group 55 to 64 years; it is now found that the mortality is also increasing in the age range 45 to 54 years.

An analysis of the data by individual organs or parts of the body affected shows, as before, that the most pronounced upward tendency has been registered for cancers of the intestinal tract; but the rise is greater as the period studied is lengthened.

The later investigation, like the former, shows no evidence of a significant decline in the death rate for cancer of any organ or part of the body.

The above constitute a few of the more important findings of this latest Metropolitan investigation.—Statistical Bulletin Metropolitan Life Insurance Company.

Gorgas Memorial

October 3rd was the 75th anniversary of the birthday of one of the "great chevaliers of medical science"—William Crawford Gorgas, physician, sanitarian and army officer, who freed Havana and the Panama Canal Zone of yellow fever.

The Gorgas Memorial Institute, with headquarters at 1331 G street, N. W., Washington, D. C., founded to honor the name and achievements of Dr. Gorgas, makes the announcement that during the past year the two-fold purpose of Gorgas, Health Education and Research, has been carried forward in an active program which has benefited directly and indirectly the profession of which he was a member.

The program of Health Education has been accomplished through several mediums: the press, the speaking platform, the radio and through high school essay contests. Many physicians have aided in the performance of this great health task. Some have written health stories in terms of lay English, which have been released through the regular publicity channels of the Institute; some have assisted the Speakers' Bureau of the Gorgas headquarters in arranging opportunities for the caravan health speakers; some have written medical articles for radio release, and a few have been of material assistance in bringing the high school essay contest, conducted during the past year, to the attention of the schools of their respective cities.

Has Often Happened

"Is your son's education at college of any real value?"

"Yes, indeed. It has entirely cured his mother of bragging about him." — Pennsylvania Punch Bowl.

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THE NEW EDITOR

The Committee on Publication has been fortunate enough to secure Dr. J. Rosslyn Earp as editor of Colorado Medicine. In the broader field of medical journalism Dr. Earp needs no introduction; locally, however, his coming among us has been so recent and his contacts have as yet been so limited, that the retiring editor takes pleasure in "bowing in" his successor by a statement of facts concerning some of his previous experiences and connections.

Dr. Earp was for two years associate editor of the International Journal of Public Health. He founded the journal Tubercle and edited its first two volumes. He has been one of the associate editors of the Lancet, to which journal he is still a regular contributor. He holds the degree of Doctor of Public Health from Johns Hopkins University. He has been head of the Health Service at Antioch College and lecturer on public health at the University of Colorado. He is a Fellow of the Royal Society of Medicine and member of the Royal College of Surgeons.

He is a member of the American Medical Association, the Colorado State Medical Society and the Denver County Medical Society.

As concrete evidence of the high esteem in which Dr. Earp is held by those who know him best, we take the risk of incurring his displeasure and shocking his enviable sense of modesty by presenting excerpts from personal correspondence of our own concerning him.

From Geneva, we received a letter as follows:

"I would be quite willing to entrust to Dr. Earp any responsibility for preparing or editing medical material.

"(Signed) FRANK G. BOUDREAN,
"Health Section, League of Nations."

From London, Dr. Squire Sprigge, editor of the Lancet, writes:

"Dr. Rosslyn Earp has often assisted us as special or occasional correspondent and editorial writer. We find his contributions acceptable to our readers; they are always well written, and the subjects which he selects for treatment, when the choice is left to him, are usually topical, and he treats them in a topical manner.

("Signed) SQUIRE SPRIGGE,
"Editor 'The Lancet.'"

Dr. W. H. Howell of Baltimore adds:

"It gives me great pleasure to say that I think Dr. Earp is especially well qualified to take the position of editor of a medical journal. He is a well trained and intelligent man who has the gift of writing. You know, I presume, that he has been a correspondent for the London Lancet. I believe that he would carry out the duties of an editor with exceptional success.

"(Signed) W. H. HOWELL,
"The Johns Hopkins University School of Hygiene and Public Health."

Into such experienced and competent hands the editorial blue pencil and scissors are now committed. From such hands we may confidently expect a high standard of medical journalism in Colorado.

ROCKY MOUNTAIN MEDICINE

In a recent editorial in the Journal of the American Medical Association captioned "The Quarterly Cumulative Index," Col. Fielding H. Garrison was quoted as follows: "The curse of recent medicine is the gigantic, senseless proliferation and prolixity of its periodic literature. It has been the despair of librarians, the enslaver of indexers, the nightmare of classifiers, the bugbear of editors, and even in Dr. Fletcher's time, was

the occasion of his celebrated witticism: "The whole world is in a conspiracy against medical bibliographers."

Any suggestion for change in medical periodicals ought to take account of this onerous state of affairs. Effort should be made to reduce rather than increase the number of journals.

Colorado Medicine has attempted to record the progress of organized medicine within the state for twenty-six years. Four years ago it also became the accredited representative of the Wyoming State Medical Society. Now some are dreaming of still greater expansion. But such a program will probably not go much beyond the present status under the name Colorado Medicine. To induce other state or county societies to adopt a common official organ with us would doubtless be greatly aided by a more general name, such as Rocky Mountain Medicine.

Such a plan has abundant precedent. The New England Medical Journal represents the Massachusetts, New Hampshire and Vermont state societies; the Southwestern Medical Journal represents the New Mexico and Arizona state societies, and the El Paso County Society of Texas; the Northwestern Medical Journal represents Oregon, Washington, Idaho; California and Western represents California, Nevada and Utah.

No grouping of state societies under one official journal finds such impelling justification as does that of the tier of Rocky Mountain states. Here there exists certain characteristic medical conditions peculiar not to one but several states. About such subjects as altitude sickness, heliotherapy, tuberculosis, silicosis, Rocky Mountain Spotted Fever, etc., physicians of this region should be more familiar than others, and for them there is reason for a common journal to record their experiences and acquired knowledge. To such a journal physicians throughout the country would naturally turn for authoritative articles on these diseases and medical problems.

Wholly aside from precedent and common interest there is the humble reason of increased revenue from advertising space. This is no mean consideration when we recall that we have just launched upon a program adding thousands to our annual budget for the sake of efficient organization.

It is perfectly true that all neighboring state societies now have journals which they use as official organs and it might be contended that no new alignments are possible. However, a more logical grouping is perfectly apparent. This grouping would probably take place spontaneously if a descriptive and inclusive title were given the official journal of the physicians of the Rocky Mountain region and some effort were made to enlist the interest of neighboring states.

THE COST OF MEDICAL CARE

It is well known that a committee, headed by Secretary of the Interior Ray Lyman Wilber and composed in part of official representatives of the American Medical Association, is making a five-year study of all pertinent phases of the cost of sickness in the United States. This committee has already issued three abstracts of the studies completed during the last two years. While there are no new facts ascertained nor conclusions drawn in these three compilations, a mass of material has been made easily available for those concerned. A limited number of these abstracts may be secured by writing the Committee on Cost of Medical Care, 910 Seventeenth Street, N. W., Washington, D. C.

Perhaps the most justifiable criticism of this undertaking is the name by which the committee is known—"Committee on the **Cost** of **Medical** Care." While the committee maintains that the investigations are undertaken with an unprejudiced mind—which no one doubts—the **name** must imply to the vast majority of the laity that the doctor's fees are too high. Then, too, it naturally directs the thoughts of the average man specifically to the cost of sickness as entailed by necessary doctors' bills, when, in reality, the committee fully intends to take into account such problems as the cost of unemployment due to illness, of preventable diseases, of hospitalization, of dental and

nursing care and even the cost of maintaining faddists and charlatans. This unhappy and even misleading name of the committee ought, in some way, to be corrected.

It is perfectly obvious that there is a wide range of attitudes of our members towards this study and the subject matter under investigation. However, after all is said and done, certainly none of us fears the facts, if they are really facts, nor are we opposed to the correct conclusions or suggestions for improvement. No good can come from an ostrich-like attitude of burying our heads in the sands of indifference if facts establish the need of change.

In the back of our minds such investigations suggests the possibility of socialized medicine. The problem at hand is not peculiar to medicine. Individualism everywhere is yielding to collectivism. Every science is being drafted into the most efficient service of society. The alchemist, for example, may easily have been an individualist in his time, but the chemist of today renders his highest service by being incorporated in organized industrialism. The doctor had no excuse for being amalgamated socially and industrially before medicine became a true science. Now the scientific medical discoveries of the last fifty years may render a service to mankind wholly apart from the personality of the doctor. These may be organized into the social fabric to a degree of efficiency not yet known.

Whatever the findings and conclusions of this committee the end results must depend, to a large extent, on the stand of organized medicine. This stand must be taken in the light of the best information and the characteristic, altruistic ideals of our profession.

At a recent secretaries' conference in Chicago we were impressed that two-thirds of the deliberators of that conference took into account some phase of this problem. We were further impressed by the lack of unanimity of thought in these discussions. The essays of Dr. C. P. McCord of Cincinnati, Dr. H. M. Hall of Wheeling, and Dr. L. B. McBrayer of North Carolina (to appear later in the Bulletin of the American Medical Association) opened discussions which clearly indicated that much more must be known before common action can be secured.

The question of sickness cost has been raised and will not be silenced until settled. It cannot be settled permanently until it is settled right. For this reason every doctor in Colorado is urged to acquaint himself with the facts of the problem, and, in consequence, take an unassailable stand for the rights of the profession and the benefits of the public.

TRANSACTIONS OF THE 1929 ANNUAL SESSION

This issue of Colorado Medicine contains the only complete exposition of the Executive Secretaryship and its allied activities that ever will be published. This is not the only issue wherein activities of the "new order" will be portrayed, but from the very nature of the Journal it cannot include a full and detailed description every month.

The December issues always have contained verbatim reports of annual session transactions. Perhaps sometimes they have been considered uninteresting and have consequently gone unread. If so, forget precedent and read the proceedings for once.

You will be interested, whether you now realize it or not.

You know that the House of Delegates in 1928 increased the annual dues of the Colorado State Medical Society, to be effective Jan. 1, 1930. You want to know why your membership now costs more; how the extra money will be used; how and why your own membership is now more valuable to you; whether it is really worth five dollars a year more to you personally. An Executive Secretaryship is in operation with a full-time office. You want to know what the office has done, is doing, is planning to do.

It is the biggest undertaking in the Society's history. The officers have promised you it will be worth while. Read the proceedings this time and judge for yourself.

H. T. S.

CAUSES AND PREVENTION OF BLINDNESS IN COLORADO*

EDWARD JACKSON, M.D.
DENVER

Medicine turns more to the causes and prevention of diseases and disabilities. Blindness, felt to be the greatest of disabilities to which we are liable, should properly be considered by the whole medical profession. The growth of specialism makes this more necessary. The beginnings of blindness are often in conditions that would never come first to the attention of the oculist; and the day for effective prevention has largely passed, before definite eye symptoms command the attention of the patient.

Statistics of causes of blindness are lacking, in many things that would add to their value. Those gathered in an earlier period do not apply for the present development of medicine. Those gathered in one part of the world would be misleading in another part. In different sections of this country the relative frequency of certain causes differs greatly. Different races, social conditions, occupations and prevalent diseases, present different causes of blindness. The general census, which accumulates so much information upon a wide range of subjects, including many for which specially qualified examiners are provided, leaves the matter of blindness to census takers, who get their information from people without any knowledge of the causes of blindness, and who may be interested in concealing the main facts. The census is notoriously inaccurate and incomplete, in its conclusions as to blindness.

The statistics in medical literature are generally based on the experience of a single individual, or they partake of the deficiencies of the census. Even the records of institutions, or authorities charged with the care of the blind, are far less complete and reliable than is to be desired. An institution deals with those who seek it, and a few others, heard of indirectly. State and local authorities have no direct means of knowing even the number of the blind within their jurisdiction; and very little about the real causes of blindness of those they have heard about. When definite reports on the condition of the blind are directly received, these are generally received so long after the condition leading to blindness, that it is often impossible to assign the cause with confidence.

In Colorado the State Commission for the Blind, for the last four years, has been trying to get reports of all the blind within the state. The results of its inquiries are incomplete, and often unsatisfactory. But they are in some respects more trustworthy than those accumulated in other states. To bring them to your attention may help in acquiring more complete and reliable information in future. So far as possible, the reports have been obtained from physicians devoting special attention to the defects and diseases of the eye. But with the large area and scattered population of our state, reports from fully competent observers have not always been possible. Lists of members of the Colorado Ophthalmological Society were furnished to the county authorities, who first pass on all applications of the blind for assistance. An oculist's report upon the condition of each applicant is required, and arrangements were made to have expert examinations, of all who might apply, at the Colorado General Hospital. But the importance of such examinations is not appreciated by all the county authorities, and in some parts of the state it seems not practical to bring applicant and skilled examiner together. Some very excellent reports have been received from general practitioners in isolated regions.

Applications for state assistance do not come from all the blind persons in a community, and some of them come from people who are not blind. Among those received were a few from persons blind in only one eye, but who have perfectly useful vision in the other eye; while in fifty-four the

*Read at the Fifty-ninth Annual Session of the Colorado State Medical Society, Greeley, Colo., Sept. 3, 4, 5, 1929.

vision in the better eye ranged from 1/10 to 20/30. All such cases and all who did not conform to the standard for blindness—vision, less than one-tenth in the better eye, have been eliminated, leaving 1,053 cases from records of the State Commission of the Blind. To make the statistics more completely represent the conditions in Colorado, there have been added from the writer's private case records 150 cases of blindness, seen in private practice in Colorado within the last thirty years. This makes a total of 1,203 cases seen in Colorado, on which this paper is based.

Under Prevention of Blindness, the editor of the American Encyclopedia of Ophthalmology says:

"The lack of accurate study on this subject is evinced in the almost total absence of any large amount of reliable data and in the inexactness of those which are obtainable." "The records of most of our public institutions, as a basis for the study of statistical data concerning the amount of blindness which exists, seem to be absolutely worthless."

"It is evident that for scientific purposes the only records that are of any value are those which are made by trained and experienced ophthalmologists, but these are conspicuous by their absence where we would reasonably expect to find them."

It is well to understand why there is such a lack of accurate knowledge of the causes of blindness. Reasons for it have become evident in the work of the State Commission for the Blind in Colorado. In addition to the difficulty of getting good reports of "trained and experienced ophthalmologists," the greatest obstacle to securing satisfactory statistics is the long time that elapses, between the beginning of a pathological process and its termination in blindness. A study of records of cases closely followed over long periods, has shown that in a large proportion of cases of senile cataract, as much as twenty years elapses from the beginning of the lens opacity until it produces practical blindness, and forces the consideration of removal by operation. Even a disease that may be as terribly acute as glaucoma may last for ten years without causing the patient to seek relief from either pain or blindness. Trachoma may be contracted in childhood; and only cause blindness when the distorted lids have caused rubbing of the cornea by misplaced lashes, over years of "weak" eyes and partial disability.

A child blinded by smallpox at 2 years old, did not seek a blind benefit until 52 years of age. Sufferers from congenital defects of the eye do not come under observation of an oculist until adult life. Cases of ophthalmia neonatorum are often neglected; until they reach school age, without any close study of the conditions actually present. Adults, with one eye practically blind from congenital defect, may reach middle life before something happens to the good eye, to enforce the fact that it has done all their practical seeing.

Even persons who have become conscious of some serious defect consult one medical advisor after another, accumulating a miscellaneous collection of unrelated observations; later making it impossible to obtain anything like connected history of the condition observed. A patient with double papilledema, giving evidence of organic disease of the central nervous system, concealed the fact that two years before she had a breast removed for cancer. A young man with Leber's disease (familial optic atrophy) persistently concealed the fact that two uncles had suffered from the same form of blindness; apparently because he knew of its unfavorable prognosis. This trait of human nature adds enormously to the difficulty of getting reliable statistics of the causes of blindness.

The reports to the State Commission are often incomplete, but many show more than one condition that might have caused blindness, as cataract and glaucoma, or uveitis and corneal opacities. The lack of essential data made it impossible to decide with certainty which of two or three conditions present was the real cause of blindness. The practical thing to do with such data is to

mention what seemed clearly the cause of blindness, or, where more than one cause for blindness is given, to mention each of the conditions present, that might have been the essential cause. This method does not balance the total cases by the sum of conditions present; it cannot show the exact percentage of cases due to each separate cause. But it does show what are the most important causes, those that should be guarded against and, so far as possible, eliminated in an effort to prevent blindness. It is from this point of view that the more important causes of blindness should be considered.

Cataract was noted in 460 cases as being present to an extent that might cause blindness. Less extensive opacities of the crystalline lens were present in many other cases. In eight cases the cataracts were congenital. In a few they were clearly, and in a larger number, probably traumatic. In five cases cataract was ascribed to diabetes, in a few to other general diseases, as influenza. But in a majority of cases they were clearly of the class called senile cataracts. In three instances they were specifically credited to "old age." The many impairments of nutrition that come with age leave wide room for further study, or for speculation.

Opacities of the cornea come next in frequency, 157 cases. This is a group in which there is great overlapping of causes. All the forty-nine cases arising from trachoma, have opacities of the cornea, and these opacities are the chief cause of the blindness. All the cases ascribed to scarlet fever, 4, and measles, 6, had corneal opacities; so had the 10 cases due to smallpox, and the 16 cases, 9 certain and 7 probably, due to ophthalmia neonatorum, and the one case apparently arising from mumps, and one from typhoid fever. That was how four cases of pterygium caused blindness; and it was an essential part of all the 54 cases set down as "shrinking of the eyeball."

Lesions of the retina and choroid in 151 cases, recognized by the ophthalmoscope, were set down as the causes of blindness. This includes 26 cases of angiosclerosis of retinal and choroidal vessels; but not the degenerative changes arising in myopia. There were two cases of obstruction of the retinal vessels and two of retinal hemorrhage, 8 of renal retinitis, 6 of retinitis pigmentosa, 1 of circinate retinitis, and 5 of atrophy of the retina and choroid.

Atrophy of the optic nerve, 132 cases, was produced by syphilis in 22 cases (and probably in many more); in 3 cases it came from drinking wood alcohol, and in others probably from excessive use of ethyl alcohol and tobacco. Optic atrophy occurs in a rather wide range of general diseases, like cerebrospinal meningitis, influenza, mumps, lethargic encephalitis and disease of the hypophysis.

Glaucoma, in every case that goes on to blindness, shows optic atrophy. The cases of glaucoma, not included above, numbered 97. These were both primary and secondary cases, many being due to uveitis, or injury.

Uveitis, iritis, iridocyclitis, chronic or subacute, furnished 76 cases, besides 13 cases of acute panophthalmitis, set down as the cause of blindness, and including two of tuberculosis.

Injury was in 66 cases the cause of blindness. Among these were 21 caused by explosives, and 6 by gunshot wounds of the eye and orbit. Among the cases in which the injury caused blindness first in one eye, were 17, in which the other eye was blinded by sympathetic ophthalmia. Lime burns caused blindness of both eyes in 5 cases. In one of these it is said "both eyes were cooked." Detachment of the retina was noted in 15 cases, some traumatic and others myopic.

High myopia with the degenerative changes that attend it, was clearly indicated in 43 cases; and was probably influential in causing blindness in other cases, especially of cataract. Blindness from myopia comes on very slowly, beginning in childhood and fostered by continued strain and neglect. It is surprising that even this many cases could be traced to their origin. Relatively it is a more important cause than these figures would indicate; since its share in causation

of blindness interweaves with such widely separated causes as corneal scars, conical cornea, congenital dislocation of the lens and cataract.

Other conditions that cause blindness appear in these 1,203 case reports. Congenital defects numbered 27 including, besides cataract, anophthalmos and microphthalmos 5, albinism 2, amblyopia 11, anomalies of the fundus 2. Vitreous opacities, given in 10 cases, are probably always associated with uveitis, or intraocular hemorrhage. Interstitial or parenchymatous keratitis was included with corneal opacities, which it nearly always leaves; and corneal opacities are always the way in which purulent (gonococcus) conjunctivitis, 4 cases in adults, causes blindness. Exophthalmos also causes blindness by corneal opacity, or by panophthalmitis. Erysipelas and apoplexy are mentioned. There was also one each of gunshot wound of the visual centers in the occipital lobe and of the optic chiasm, brain tumor, lethargic encephalitis, and fracture of the skull with vitreous hemorrhage.

Numerous conditions that have not been encountered, or mentioned in this study, may cause blindness. The prevention of all conditions causing blindness is a large undertaking. The prevention of blindness from any one of them is a matter of almost infinite detail. Manifestly we cannot now consider any of this detail; but from this review of the causes of blindness certain facts stand out that are of greatest importance in such prevention. It is a matter of close co-operation between eye physician other branches of the medical profession and the public. Prevention is going out to meet disease before it is manifest. This includes all measures of ocular and general hygiene in an age and civilization that lives by sight. But it also means, the earliest recognition and treatment of the wide range of departures from health that may lead to blindness. In this sense, vascular and other degenerations may be prevented; and the whole body becomes the field in which to look for what may cause blindness.

Ocular lesions may be most likely to cause blindness; but prevention requires that their presence be discovered and their dangers understood early. Uveitis leads to blindness through a long course of attacks, incomplete recovery and recurrences. It generally depends on extraocular causes. Focal infections must be looked for, not only in the teeth, tonsils, and sinuses, but in all other organs, if uveitis is to be permanently cured before it causes blindness through glaucoma, vitreous opacities, or choroidal atrophy. The underlying cause of cataract may be syphilis, diabetes or parathyroid insufficiency. Causes must often be removed for effective treatment, and always for prevention.

To prevent blindness treatment must begin early and must be effective. It may be fifty years from the beginning of a myopia until it ends in blindness by cataract, detachment of the retina, or choroidal atrophy. There are usually years in which effective treatment of trachoma will prevent blindness, but later nothing may be of any benefit. Early treatment may preserve good sight in glaucoma. But when it has caused blindness relief from pain is all that can be hoped for. The same is true of prevention of sympathetic ophthalmia. If optic atrophy can be checked, it is only by early treatment. The early treatment of all sorts of injuries to the eye will sometimes turn to a favorable result the doubtful situation that holds possibilities of useful vision and blindness.

The majority of eyes that become blind could have been kept with some sight by early proper treatment. The prevention of blindness depends on turning of patients to seek good treatment at the earliest possible time:

The readiness of physicians to recognize disease that may lead to blindness, when the eyes seem to be little if at all, affected.

The understanding that diseases which do not usually affect the eye may, in some cases, cause blindness and need to be watched with this in mind.

The preparation of eye physicians to recognize the possible dangers of the conditions they treat; and their willingness to

take responsibility for deciding when an eye should be taken out, because it may endanger the sight of its fellow; or to operate, as for cataract, or glaucoma, when this alone will prevent blindness.

It is a broad subject and only to be dealt with by broad study, broad view and broad intelligence, on the part of the profession and the community.

DISCUSSION

James J. Pattee, Pueblo: Preventive medicine, as an applied principle, is of recent origin. In all the branches of the profession, it has made more progress in the last two decades than in any previous century.

In his timely paper the writer has pointed out that conclusions regarding the prevalence, cause and prevention of blindness, based upon the sources at our disposal are inaccurate and misleading. The need is for an improved standard and greater reliability regarding the facts pertaining to blindness.

The Colorado State Commission for the Blind, whose plan has had the encouragement and tireless support of Dr. Jackson, has undertaken to procure actual reliable facts which may serve in the prevention that "Most terrible of human afflictions, blindness."

The paper stresses the need of "getting good reports from trained and experienced ophthalmologists." The splendid example set by the writer and the influence of this paper will stimulate interest among physicians and opthalmologists that will do much to correct the existing shortcomings of our specialty. Lest we forget, these warnings must be repeated over and over again.

The plan calls for the co-operation of employees of labor, workers in social hygiene and preventive medicine, health, officials, physicians and oculists. The work done should be accurate, painstaking and carefully recorded. Every worker should contribute all useful findings. The task is not the task of any single group. It is not the sole concern of the oculist. It is his concern, but not his alone.

Specialists in every line know that the first call for relief is made upon the family doctor. In rural communities there is no one else to call. Every new-born child offers the physician an opportunity to prevent blindness. The eyes of every new-born child should be treated with silver nitrate.

Eye injuries due to negligence and child's play with dangerous explosives and toy pistols are far more numerous than they should be.

Injury caused blindness in sixty-six cases reported. Apparently trivial injuries, which occur frequently, may prove disastrous to the eye. The wearing of protective goggles by industrial workers and placing guards on all hazardous machines will prevent most of these injuries. By this means the laity can aid in the prevention of blindness.

In rural communities and even in cities, many of these cases are first seen by the general practitioner. I quote the following from Dr. John Green (Journal, Kan. Med. Society, Nov., 1928): "Never estimate the extent of seriousness of any injury from the looks of an eye. Many a seriously injured eye may differ little in appearance from its uninjured fellow. Regard every eye injury serious until searching examination and long observation have proved the contrary."

If after a careful searching examination you are in doubt about the presence or absence of a fine foreign body in the eye, your liability will be minimized by consulting an oculist.

The eyes of the child whose mother has a history of miscarriages or still birth should be carefully watched and such a patient receive thorough antisyphilitic treatment, even in the absence of eye lesions. The pregnant syphilitic woman should have prenatal treatment. It is almost certain to prevent eye trouble in the child. No other can render this service as well as the family physician.

If the ideas presented in the paper were strictly followed, the economic burden upon the public would be greatly reduced.

As the author said, it is a broad subject, calling for broad study. It calls for the co-operation of numerous agencies and workers, but the responsibility for leadership, in putting the idea into actual practice, rests squarely upon the shoulders of the medical profession.

W. H. Crisp, Denver: I am afraid there is a feeling among general practitioners that ophthalmology is a forbidden field, outside their ken, yet here is an ophthalmological subject which touches the whole scope of the practice of medicine. The problems of blindness are not merely the problems related to the ophthalmologist; they are problems which affect nearly every branch of medicine. The obstetrician has an important work in guarding the new-born baby against ophthalmia neonatorum. The neurologist and the general physician who are wise enough to study the ophthalmoscope as an aid in the diagnosis of disease may do much to at least anticipate the possibility of further developments which will lead to blindness. The industrial physician, the physician handling accident cases, needs to devote very careful study to the matters which he must watch as affecting the possibility of blindness in his patients. It is obvious we can never prevent all cases of blindness. We should have to go back into the ancestry of some of the patients and eliminate factors in his forbears which have led to blindness of congenital origin. We should have to be able to abolish all syphilis, we should have to be able to eliminate tuberculosis, to avoid the occurrence of arteriosclerosis and a number of local infections. We shall improve in these factors as time goes on, and blindness ought to become less common; but there will always be blindness. The thing is that every practitioner of medicine must approach the causes of blindness as they affect his patients, and he must be on the lookout for everything that he can do to so improve the patients' ways of living, or to improve diagnosis, so as to diminish these risks. The elimination of blindness would involve the elimination of alcoholism, not only in the grown-up patient, but as a factor in degeneracy as leading to blindness. Industry will always claim numerous victims in the matter of blindness. And it seems as though the problem of protecting the workman against blindness from industrial causes is fought against by the workman himself in many cases. Many of our largest industrial corporations in this country lay down an absolute rule that all their workers must wear goggles in performing certain industrial functions, to avoid danger of injury to the eye.

J. R. Earp, Denver: I am very much interested in this paper, not as one who knows anything about the eye, but as one who is honestly interested in preventive medicine; and I should like, before Dr. Jackson finishes this discussion,

to ask him whether the periodic medical examination may not give some opportunity for preventing blindness, and whether it would be too much to ask him to say very briefly what he considers the minimum equipment for the examination of the eye in such cases, and the minimum procedure, so that we shall not be overlooking things that we ought to be catching at that time. And I do not know whether it is fair to raise the question of color blindness, which perhaps is not quite germane to this paper, but I would be interested to know whether he thinks it important to distinguish color blindness in the periodic health examination, and whether it is important to distinguish those finer shades of color blindness which are revealed by the Ishihara test but not by the common wove tent.

Dr. Jackson (closing): The questions are very important. With reference to health examinations, this idea, I think, should receive some circulation. The health examination is new. It is still under debate. But the thorough examination of the eye for glasses, which includes an ophthalmoscopic examination, always should be made. A record of the acuteness of vision, and what there is about the eye that prevents standard vision, that is a form of health examination that has been going on quite widely for fifty or seventy-five years; and its results are beginning to show in the improved health of the eyes. The matter of cataracts coming to operation is becoming less frequent in the older, well established communities interested in the subject for fifty years. Without any basis of statistics, such as there is as to increase in the length of life, it is sure that cataract is less frequently a cause of blindness. The periodic examination for glasses is really a health examination, and begins to show results; it ought to be understood and appreciated in this discussion how the medical profession should get behind the movement for periodic health examinations; and what health examinations should be in order to be most effective.

Both Dr. Crisp and Dr. Pattee alluded to phases of this subject, but it has a great many other aspects. This should be borne in mind: There are probably something like fifteen hundred people who are practically blind in Colorado, with a population of about a million inhabitants. Different countries vary widely in the proportion of their blind. Smallpox, formerly caused a large proportion of blindness; and in certain portions of Russia and Portugal, where vaccination was not compulsory, smallpox has been, up until the last statistics, one of the most important causes of blindness. You ought to be ready to bring this up whenever vaccination or anti-vaccination is debated. A few years ago I went on duty at the County Hospital at Denver, and was told the first evening that there was an old woman who wanted to see me, and she wanted to see me every time I went there during the next few months. That woman had come in under the service ahead of mine, blind from smallpox. She had lived seventy-five years, without being vaccinated. She got smallpox and was absolutely blind in both eyes; and we have ten cases, and probably a good many more that were not definitely referred to that are here in Colorado. We have quite a large Mexican population, that is widely scattered and very poorly vaccinated, so that smallpox occurs in Colorado almost every year.

JOHN COTTON DANA, FOSTER-FATHER OF THE DENVER MEDICAL LIBRARY*

HENRY SEWALL, M.D.
DENVER

It was in the spring of 1893. The population of Denver was approximately 125,000. Two one-horse schools of regular medicine, the Medical Department of the University of Denver, and the Gross Medical College across the creek. Their faculties seem to deserve a place in the Hall of Fame since many of their members applied in their daily work the conception which is the last word in theoretical physics, the Quantum Theory, which, I gather, postulates the application of energy by fits and starts. A homeopathic school also was said to exist, but was never fully resuscitated from the pallid asphyxia in which it was born.

Denver was the chief town in Arapahoe county and our Medical Society had not entered the hymeneal contract by which it lost its aboriginal name of Arapahoe County Medical Society. Platt Rogers had nearly completed his two-year term as mayor, an office which insurgent honesty, and otherwise, among the electors, had forced upon him. Even so, Judge Rogers had made it a condition of his heading a reform administration that revolutionary changes be made in the conduct of the Health Department.

An outstanding member of the medical profession, a retired surgeon and physician who held the respect, esteem and confidence of the whole community was induced, not to say seduced, to accept the post of health commissioner, Dr. Henry K. Steele. Dr. Steele consented under protest, conditional on permission being granted that he divide his salary between two assistants, who should, under his leadership, bear the burdens of the practical conduct of the office.

*On the evening of September 17th the County Medical Society of Denver commemorated the recent passing of two leading personages in the history of its Medical Library, John Cotton Dana and Walter Addison Jayne.

Largely through the influence of a late medical leader, Dr. E. J. A. Rogers, the choice of assistants fell upon two medical citizens who had sought Denver while it still was considered a health resort, and who were alike as inhabiting an external environment of impecuniosity and having an internal environment dominated by King Tubercle Bacillus. Dr. William Phipps Munn was one, the present speaker the other.

Munn was Scotch—way back—was fearless, teeming with aggressive energy, a knight-errant in the service of the wronged. He was the intellectual spittin' image of Big Stick, T. R.

I must reluctantly leave under their silent sod those chivalric pioneers who leveled their lances at community evils of whatever nature and however securely entrenched. Mayor Platt Rogers, Drs. Steele and Munn had set a character copy which we need to emulate today. But in the scientific, and therefore the clinical, armamentarium of medicine we are vastly richer now than then.

As Nature, in evolving her creatures, nursed form and function together, but apparently form always a little in advance—so that function found a ready habitat in form and could not otherwise make expression; so in our local medical history our library, more than any other material asset, has furnished the form in which every aspiring function could develop.

In the spring of 1893 there was no collection of medical books or journals in Denver except such as might be found in the private libraries of medical practitioners.

This seemed to me to be an intolerable condition. One day, I think, in May of that year, while conferring with Mayor Rogers in his office, I asked him how it was that lawyers always seemed able to establish libraries for their mutual use and thus make available to the poorest member of the bar a range of technical literature far broader than he could hope to acquire individually; how would he advise doctors, without funds or a building, to set about accumulating and sustaining a medical library?

The mayor answered, in effect: Let the doctors pool, as far as possible, their books and journals and deposit them in the office of some member of the fraternity or in a special room devoted to the purpose. David Spivak, with his phenomenal originality and teeming energy was not yet a resident, but several years later he took up and extended this communistic idea, which for him had a philosophic appeal.

Personally I had little faith in that kind of medical co-operation so I hied me to my friend and patient, John Cotton Dana, who was librarian in charge of the Denver Public Library, located in the building of the East Denver High School, occupying the block bounded by Nineteenth and Twentieth, California and Stout streets. Every forward-looking man and woman, especially the latter, aspiring to culture, had formed the habit of applying to Dana for advice or aid in affairs of non-bureaucratic public education; never did they lack a cordial reception or fail to receive sympathetic and stimulating ideas, and a helping hand when possible.

The problem was put up to Mr. Dana. His solution was categorical; there was no **if, but** or **provided.** Contingent on the doctors forming a library association, he agreed not only to provide "shelf room and the usual clerical care for the property of the association, but also to expend upon medical literature at least as much money as might be subscribed by the members of the Library Association."

The news was carried like hot scandal to the medical leaders of our local profession and it received as warm a welcome. The most cordial co-operation was offered by J. T. Eskridge, a man of strong and positive character and **facile princeps** among neurologists and psychiatrists between the Missouri river and the coast. His fine library now forms a part of our collection. Samuel A. Fisk, who may have been called our "Society Doctor" of Denver, but a veritable apostle of public helpfulness, and the redoubtable Munn, before referred to. No grass grew under our feet.

On the evening of May 27, 1893, a meeting was held by invitation of Dr. Eskridge at his office in the Equitable Building.

There were present Drs. J. T. Eskridge, H. S. Snitcher, E. J. A. Rogers, Wm. P. Munn, J. N. Hall, Wm. M. Nickerson and Henry Sewall; and, by invitation, Mr. J. C. Dana, librarian of the Denver Public Library.

Then and there was formed the Colorado Medical Library Association, with Eskridge as president and Sewall as secretary-treasurer, and a comfittee was appointed to draft the formal papers of organization and government. At a meeting held a couple of weeks later the Constitution and By-Laws were presented and arrangements were made to circularize the medical profession of the state, inviting membership and support. Articles of Incorporation were filed on June 24, 1893. Time does not permit me to go into the practical details of our library growth. No Bolshevik republic was ever more insidious in its propaganda than we. The Medico-legal Society disbanded and its funds of $75 were given to us. The State Medical Society appropriated $200. The annual membership was set at $5. Life memberships (on which the Society chiefly survived for several years) might be had for $100.

Mr. Dana, our honorary but official librarian, issued at frequent intervals notices of the library and its purposes. St. Luke's Hospital loaned to us a considerable library (never returned as far as I know). Individual doctors gave or loaned us books. Especially to be mentioned, Dr. Thomas H. Hawkins donated many volumes, including, I believe, exchanges and books for review from the DENVER MEDICAL TIMES of which he was founder and editor.

Mr. Dana broadcasted repeatedly and in a variety of ways, calls for help to libraries throughout the country, in the tenor of the card here transcribed.

Colorado Medical Library, Association,
Denver, Colorado.

Office of the Secretary,
July, 1893.

The medical fraternity of Denver and Colorado are endeavoring, as the accompanying booklet shows, to build up a medical library in this city. It is not necessary to call attention to the advantages which accrue to the profession of medicine through the establishment of a medical library. Our remoteness from the centers of population makes the work we have undertaken difficult in many ways. Your society can aid materially in this enterprise by sending us its proceedings. Anything sent us will be acknowledged, placed on the shelves of the library, and brought to the attention of its readers.

Yours respectfully,
J. T. ESKRIDGE, M.D., President.
HENRY SEWALL, M.D., Secretary.
J. C. DANA, Librarian Public Library.
For the Association.

Address, care Public Library, Denver, Colo.
(The Association will pay transportation if you wish.)

Our first great start was in 1894 through a donation from the Boston Medical Library. This institution was just then changing its quarters and offered us a great number of its duplicate volumes. This material when landed here filled 66 large shoe-boxes to a weight of six tons. After months of winnowing, some 2,000 volumes of books and journals were added to our collection from this source; many of them were of great value. The normal cost of transporting this material must have made it absolutely inaccessible to us, but for Dr. S. A. Fisk. Through personal influence with officers of the Burlington railroad, the freight rates were reduced to $150, which Fisk paid out of his own pocket.

The National Government itself took a lively interest in our welfare. Surgeon-General G. M. Sternberg visited Denver in 1896 and at the request of our warm friend, Col. A. A. Woodhull, who was medical head of the Department of Colorado, he directed the latter to exchange with the Medical Library Association the medical libraries of any posts in the Department of Colorado which might be abandoned.

"On Feb. 1, 1897, 288 volumes of Journals were purchased from a dealer in Kansas City at 10 cents a volume, and in July the State Medical Society gave the Medical Library Association another $200. This sum enabled the association to pay the transportation of a very valuable exchange of 9,333 numbers of Journals and 437 bound volumes from the library of the surgeon-general's office in Washington. In December a gift of a case of books was received from Dr. Jesse Hawes of Greeley."

The report of the secretary for 1894 summarized the accomplishments thus: "The result has been that the collection of medical books in Denver has grown, in a little more than a year, to include about seventy-five medical journals taken by subscription; about 400 complete volumes of medical journals; about 2,000 volumes medical books, besides several thousand pamphlets. It may be said almost without reservation, that **any medical work desired by a member of the Association will be placed upon the shelves at the earliest opportunity.**"

A cultivated assistant to Mr. Dana in the Denver Public Library, Mr. Francis D. Tandy, wrote an interesting history of the Colorado Medical Library Association up to June, 1898, and his tabular representation of the growth of the library is reproduced here.

STATEMENT OF THE GROWTH OF THE COLORADO MEDICAL LIBRARY ASSOCIATION AND THE MEDICAL DEPARTMENT OF THE PUBLIC LIBRARY, DENVER, JUNE 1, 1893, TO JANUARY 1, 1898

	Jun. '93	Jan. '94	Jan. '95	Jan. '96	Jan. '97	Jan. '98
Books belonging to the Public Library				1435	1559	1640
Books belonging to the C. M. L. A.			1518	125	398	477
	503	1176				
Reports of Societies and Boards of Health				606	1200	1230
Bound Journals			200	910	1332	1975
Totals	503	1176	1718	3076	4489	5322
Journals received regularly by subscription	9	38	35	33	30	29
Journals received regularly by gift		7	15	113	118	148
Totals	9	45	50	146	148	177

This sketch of Mr. Tandy's was written for the 4th number of the first volume of **Medical Libraries**, a little journal the first of its kind, which had its birth in the phenomenally original imagination of C. D. Spivak, who bore, single-handed, the full burden of its editorship and upkeep through five volumes extending from 1898 to 1902, inclusive.

An important crisis in the history of the medical library occurred about this time. Local conditions, which cannot be considered here, decided Mr. Dana to accept an invitation to become librarian of the Public Library of Springfield, Mass., in 1897. He therefore presented his resignation as librarian of the C. M. L. A., and this was accepted at the 5th annual meeting of the Association held on Jan. 17, 1898.

As this is not primarily a history of our library, I will hurry through the account of our sojourn in the wilderness up to our entrance into the promised land which we now enjoy. It had been shown that it is possible for poor people having strong purpose and sufficient energy to make a considerable collection of books. But, as we refer to certain persons of great psudo-wealth as being "land poor," so an association with a great store of literary works may be "book-poor."

In 1898 the municipal or "City Library," of which Mr. Chas. R. Dudley was librarian, and the "Public Library" were combined under the professional control of Mr. Dudley.

The combined libraries were moved hither and yon, always to inadequate quarters, in which the medical contingent received no proper care; all this pending the opening of the new Carnegie Library Building in 1910 in which, it was promised, the Medical Library should have ample service and shelf accommodations for 10,000 volumes.

The outlook for the future of the library became more and more discouraging, and its bare existence seemed threatened. Generous colleagues prominent among whom were Dr. J. W. Graham and Dr. W. W. Grant, could no longer be approached for donations. Loyal members of the profession cogitated every conceivable means of maintenance. We of the old guard became weary in well-doing.

About this time a new force was added to our councils. Dr. Walter A. Jayne had been quietly developing his great talent for administrative detail in association with the faculties of the two medical schools—the

Denver and Gross College of Medicine and the Medical Department of the University of Colorado. In the prolonged diplomatic negotiations which led to the union of the two schools Jayne took a prominent part.

His first public demonstration of organizing talent was, when selected by the keen judgment of Dr. J. W. Graham, he conducted the arrangements for the meeting of the American Medical Association in Denver in 1898.

Within the past year Dr. Jayne completed a short history of our library which, I think, deserves a high place among works of its kind.

From 1898 the Medical Library entered on a phase of chronic invalidism, at times it was almost like a patient whose life depended on artificial respiration. In 1902 a scheme was promulgated to change its policy into that of a more exclusive and selective membership, with higher fees, and in 1903 this plan was crystallized in the organization of the Denver Academy of Medicine. The two institutions lived side by side, the Colorado Medical Library Association moribund, but owning all the property; the Denver Academy owning only hopes and vitality, like a prospective heir.

Dr. Jayne, I believe, was the originator of the academy idea, and it is interesting to note that in 1903 the discouraged Association elected him President to safeguard the property, and this office he held until 1907 when, February 21, the Association resolved to transfer all of its property to the Academy, and itself cease to exist. The further history of the Academy of Medicine, its sapping of the literary and scientific attractions of the County Medical Society, the incubation of a feeling among the membership of the County Society that it would be a good thing to have available the assets of the academy—in all of which we can see the guiding hand of Jayne—this reads like a story from the life of Bismarck maneuvering for the amalgamation of German petty states into an empire!

November, 1909, saw the beginning of the union between the County Society and the Academy of Medicine which has resulted in the former acquiring the property of the latter, which then resigned its existence.

This history is apparently a replica of the histories of all great medical libraries. In each that I have traced, the enthusiasm of one or more fore-looking individuals has led rapidly to a more or less considerable collection of books, which is in this day and age not a difficult matter. Not to belittle this indispensable creative phase, it must prove essentially abortive without the mechanistic aids to development represented by library shelves, library attendance, provisions for increase, and systematic administration of the assets. All this means a constant outlay of money without obvious corresponding returns. This represents an incubation period of "innocuous desuetude"; it may last a hundred years. That it is only a period of incubation is evidenced by actual medical histories. Sooner or later developing culture recognizes that here at hand is a means necessary to its existence. That not only does such a literary collection present a panorama of the history of medicine, but that it is a store of all the philosophic conceptions of the past. In addition it provides, like a newspaper office, an up-to-date account of current thought and achievement in medicine, ignorant of which no practitioner can expect to advance or even hold his own in the higher walks of his profession. Then, suddenly in the course of this evolution, bequests are made, legacies accumulate and those still living begin to feel that to sustain the medical library is for them a simply business enterprise.

John Cotton Dana was one of that host who must bless Colorado for the gift of health. Note that—for Mehistopheles out of hell now holds the ear of the eastern medical Faust, whispering that climate is of no use to the health seeker.

Dana graduated from Dartmouth College in 1878 and began the study of law. Ill-health sent him to Colorado where he surveyed mining claims and consorted with the genus cowboy—and took mental notes. He returned East in 1883 and was admitted to

the New York Bar. Ill-health forced him back to Denver where he was occupied with surveying until 1889, when he became head of the Denver Public Library. The next eight years was his period of incubation. He came of that Puritan stock that had shaken its fist in the face of royalist privilege and convention, and denial of liberty in thought and belief.

But the conscience in him broke the fundamentalist shackles of his forebears and he became intellectually a citizen of the whole world—and perhaps the freest man in it. He sought only truth because truth would make him free. When "civilized" Europe united in contemptuous exploitation of China, he was delving deep into the wonders of Chinese culture. When the tidal wave of propaganda for "free silver" engulfed the Rocky Mountains, Dana smiled and turned his shoulder to the current.

The aid he gave so abundantly to the Colorado Medical Library Association was all that assured its existence. I believe he welcomed the opportunity and got abundant returns from it, for it offered practice for his originality in the very field in which he later became so famous.

Dana's idea of a library was practical usefulness. Many a warm dispute did I have with him over the stuff that was worth shelf room. For him a book or a pamphlet was part of a machine for human progress and to be discarded when not of present or near-present usefulness.

He left Denver in 1897 and until 1901 was head of the library in Springfield, Mass., during which period there was an increase of 47 per cent in the number of books borrowed.

In 1902 he became chief of the Free Public Library of Newark, N. J.—that city of factories, busy hive of industrialism and a population including a large contingent of the foreign and insurgent submerged. He died July 21, 1929, at the age of 73, having won the title of the "First Citizen of Newark." Those great but pragmatic newspapers of New York united in respectful and affectionate laudation of his life work. One said "In 1918 he came into notice for his strong and liberal stand for liberty of thought. An organization calling itself the Vigilantes objected to the presence on the Newark Library shelves of "pro-German works." Mr. Dana's quiet reply was a masterpiece of classic restraint: "I came to the conclusion (which I still hold) many years ago," he wrote, "that liberty of thought is a very desirable thing for the world, and that liberty of thought can be maintained only by those who have free access to opinion."

A small collection of objects in a corner of the old Newark Library was increased and diversified until the awakened intelligence of Newark and of one of its far-seeing citizens constructed for them a great art museum, completed in 1925, on which occasion a commemorative medallion was struck off picturing Dana's profile as that of the real founder of the museum. A photograph of this hangs in our own library. Right here it may be observed that the collection of medical souvenirs and implements may be no less a worthy purpose for our own library than the collection of books.

Dana's idea of use was illustrated in his theory of a museum, that it "should be primarily a collection of people, not of objects." He was greatly interested in cultivating in people perception of the beautiful, however represented. In referring to art objects he was wont to say, "Beauty has no relation to age, rarity or price!"

On one occasion the public were invited to an art display in the new museum. Great admiration was expressed by visitors for the many objects of beauty, textiles, vases, etc. Great was the surprise evoked when at the exit of the building a modest notice was seen, "That everything on display had been made in Newark and the like could be purchased in the shops at the price of not more than a dollar apiece."

This was a great man who early fostered our Medical Library and left us a heritage ready for increase at the hands of that other whom you have honored tonight.

SILICOSIS

T. E. BEYER, M.D.
DENVER

During the past eight years 124 patients suffering from miners' phthisis or silicosis were examined at the Denver Municipal Tuberculosis Dispensary. This does not include cases of anthracosis or other forms of pneumonokoniosis not a few of whom were examined during the same period. The average age of the patients was 50 years. Sixty-eight were uncomplicated miners' consumption; forty-six had tubercle bacilli in the sputum. The average number of years engaged in mining was sixteen, with extremes of three to forty-eight.

Miners' consumption occurs only in hard rock miners; in this state, silver and gold miners. The greatest single etiologic factor is dust; fine, insoluble, quartzite dust produced by drilling, blasting and squibbing. Contributing factors are high temperatures, poor ventilation and noxious gases from explosions.

The continuous inhalation of an atmosphere surcharged with fine dust breaks down the normal defensive mechanism against dust inhalation. Aspirated dust particles which have penetrated the alveolar walls and have been distributed by the lymphatics set up a slow reactive inflammation such as is produced by any foreign body irritant resulting in a formation of scar tissue. The foremost pathologic aspect of miners' phthisis, then, is fibrosis, or the replacement of the elastic tissue of the lung by an unyielding fibroconnective tissue which renders the portions of the lung so affected practically airless. The term miners' "consumption" is a misnomer. Miners' consumption is neither an infectious nor an ulcerative process; it is an interstitial pneumonia the deleterious effects of which result from mechanical constriction and obliteration of the blood vessels, air tubes and air vesicles of the lungs. In itself it incapacitates and may kill the patient, but usually it prepares the soil for a tuberculous infection.

The development of miners' phthisis is as a rule so slow and insidious that the patient is unable to assign even an approximate date to the onset of symptoms. Pain in the chest is an early symptom and continues throughout the course of the disease. This pain is located over the upper anterior portions of both lungs and is not influenced by respirations. Twenty patients had hemoptysis while working.

The cardinal symptoms of a well developed case of silicosis are dyspnea and loss of weight and strength. The dyspnea is remarkable in that it is noticeable only on exertion. Loss of weight is frightful, averaging over thirty pounds. This, in the absence of anorexia or other gastro-intestinal symptoms, must be attributed to decreased metabolism resulting from deficient oxygenation.

Cough and expectoration are generally not prominent symptoms.

Physical examination of the hard rock miner reveals diminished expansion of the chest so that breathing becomes mainly abdominal. The chest is fixed in a condition of partial inspiration. Percussion and auscultation are often disappointing. The lungs are essentially dry. Even in cases with urgent dyspnea we may find nothing but weakened breath sounds due to mechanical blocking off of portions of the lung. Chronic bronchitic and asthmatic symptoms were often so prominent that in not a few cases the diagnosis was overlooked until we got an X-ray plate.

The heart of the hard rock miner is nearly always hypertrophied, the right ventricle more than the left. This hypertrophy offers little protection against the development of tuberculosis. Strangely enough, however, it persists even after tuberculosis complicates the picture. Myocardial degeneration and atrophy rarely occur and the drop heart, so characteristic of tuberculosis, is not often seen.

When a tuberculous infection becomes engrafted upon the silicotic lung the patient loses rapidly in all directions. He now be-

comes febrile, cough and expectoration increase but hemorrhages are rather infrequent. Physical examination is very apt to reveal signs of cavitation, and, in fact, the whole picture is now that of a far advanced pulmonary tuberculosis.

Tuberculosis engrafted upon miners' consumption remains localized in the chest. Hematogenous extension of the disease, so frequent in phthisis, does not occur. In this series there was not a single case of tuberculous otitis media, enteritis, epidydimitis or meningitis. Even the larynx, which is subjected to more trauma than any other organ, escapes. Anesthesia of the pharynx and larynx, which has been described by Jarvis as occurring in granite workers, was not noted.

The diagnosis of miners' consumption offers little difficulty. Progressive dyspnea in a hard rock miner is pathognomonic of silicosis. Add to this a radiograph and the diagnosis becomes conclusive. Malignancy, asthma, and fibroid tuberculosis cannot always be excluded by physical examination alone. In general it may be said, however, that miners' consumption does not clinically resemble pulmonary tuberculosis. There is too much dyspnea. Were this due to tuberculosis we would expect the patient to be bedridden and decompensated.

The treatment of miners' consumption is a sociological problem which demands social regulation. The experience of the British Government in South Africa where the incidence of miners' consumption has been reduced from 25 to 5 per cent is ample evidence of what can be accomplished by proper prophylactic measures. Upon the medical profession falls the grave responsibility of awakening public sentiment and initiating legislation which will bring about a condition of industrial hygiene in Colorado mines.

ERRATA

Page 357, line 18, 1st column, should read "not be so disheartening,"

Page 358, line 14, 1st column, should read "If the author of Mrs. Cashel Byron's"

Page 358, line 26, 1st column, should read "humanist, ridiculed the physician".

TUBERCULOSIS RESEARCH IS HELPED BY SALE OF SEALS

The fact that scientific research for the discovery of a specific cure for tuberculosis is dependent in large part upon Tuberculosis Christmas Seals is one of the most important phases of the campaign for the sale of the seals. Strides already made along scientific lines, thanks to the support by the National Tuberculosis Association, brighten the horizon of the future in the control of this disease.



For the last seven years a group of leading scientists drawn from many departments of knowledge, and affiliated with various institutions of learning throughout the country, have been engaged in a co-operative investigation of tuberculosis, for this purpose calling themselves the Research Committee of the National Tuberculosis Association. These men, under the leadership of Dr. William Charles White of Washington, D. C., as chairman, have received no compensation for their work, but actual laboratory expenses have been met from money raised each year in the Christmas seal sale. The object of this research, of course, is to find some method to extirpate the disease. While this has not yet been achieved, two discoveries in the year last past have made valuable contributions to the war on tuberculosis.

Tuberculin, the substance used in the test for detecting tuberculosis in human beings as well as cattle, has been reduced to absolute purity, something never before achieved, so that it can now be supplied wholly free from other substances which affected the accuracy of these tests in the past. The details of this process were worked out by Dr. Esmond R. Long and Dr. Florence B. Seibert, of the University of Chicago.

The second research achievement consisted of the production of a wholly new mechanism for testing the individual for the presence of tuberculosis, which renders the detection of the disease possible within three or four days of infection instead of an average of two months afterward, as is at present the case. This work was achieved by Drs. Florence R. Sabin, C. A. Doan, and C. E. Forkner, of the Rockefeller Institute for Medical Research.

State-wide activities in the control and prevention of tuberculosis are being carried on by the Colorado Tuberculosis Association and local affiliated organizations. This work includes general education through public health nursing, tuberculosis surveys and clinics and a yearly campaign for the early diagnosis of tuberculosis.

FIFTY-NINTH ANNUAL SESSION COLORADO STATE MEDICAL SOCIETY

GREELEY, COLORADO, SEPTEMBER 3, 4, 5, 1929

PROCEEDINGS OF THE HOUSE OF DELEGATES*

MINUTES IN DETAIL

FIRST MEETING OF THE HOUSE OF DELEGATES, 8 P. M., Sept. 2, 1929

President Childs: "The House of Delegates will please come to order. There being more than seventeen of the members of the House of Delegates, which is a quorum, we will proceed with the report on credentials by Dr. Stephenson:"

(See report in full on next page)

Dr. Stephenson (Continuing): "The official roster of delegates constitutes part of this report, and I will call the roll from this list, as we have it. The San Juan Medical Society asks us to seat Dr. A. J. Nossaman in place of the appointed delegate or alternate, neither of whom is able to be here."

Dr. Nossaman was seated by vote of the House.

The roll was then called by the Secretary.

President Childs: "There are thirty-six delegates present.

"The next order of business is appointment of Reference Committees for this session. I will appoint:

"Committee on Appropriations: C. F. Kemper, Chairman, Denver; George H. Curfman, Salida; W. B. Hardesty, Berthoud.

"Reference Committee on Reports of Officers: P. J. McHugh, Chairman, Fort Collins; G. A. Moleen, Denver; F. M. Heller, Pueblo.

"Reference Committee on Reports of Committees: C. H. Graves, Chairman, Canon City; L. W. Frank, Denver; W. K. Reed, Boulder.

"Reference Committee on Miscellaneous Business: H. T. Low, Chairman, Pueblo; T. E. Beyer, Denver; C. A. Davlin, Alamosa.

"A special Committee on Amendments to the By-Laws was appointed probably a month or six weeks ago, and is published in the program of the Annual Session, but I will read the names:

"William H. Halley, Chairman, Denver; John R. Espey, Trinidad; C. E. Harris, Woodmen.

"The next order of business is the reading of the minutes of the last Annual Session."

Dr. Espey: "I move that the minutes as reported in Colorado Medicine, 1928, be accepted in lieu of reading them here."

The motion was duly seconded, put, and carried.

President Childs: The next order of business is the nomination of members of the Nominating Committee. Nominations are now in order."

The following members were placed in nomination:

Dr. H. S. Finney, Chairman.
Dr. H. T. Low.
Dr. G. M. Noonan.
Dr. W. B. Hardesty.
Dr. G. H. Curfman.

President Childs: "Are there other nominations? (No response.) We are to have a committee of five."

Dr. Harris: "Mr. President, I move that the nominations be closed."

The motion was regularly seconded.

President Childs: "The By-Laws call for a vote by ballot, but if you care to dispense with that procedure, will someone make a motion that the vote be made unanimous for these five members? Perhaps we better have the ballot taken. I will appoint Dr. Moleen and Dr. McClanahan as tellers."

Dr. Moleen: "Mr. President, I do not wish to shirk any duties, but there are only five members nominated, and I move as a substitute motion that the rules be temporarily suspended, and that we unanimously elect the five members nominated."

The motion was duly seconded, put, and carried by rising vote.

President Childs: "The next order of business is the report of officers, and I see that my name appears first on the list. I will read my report."

REPORT OF THE PRESIDENT

The co-operative spirit of the House of Delegates in endorsing measures which we trust will prove of great benefit to this Society and the efficient work done by the different committees have been of great assistance in whatever your officers have accomplished during the past year.

In the selection of an Executive Secretary your President, Treasurer and Secretary have been greatly assisted by the counsel of representative members of the Society, who have attended several meetings held in Denver at which the qualifications of thirteen applicants for the position were carefully considered. The assistants to the original committee appointed by the House of Delegates were as follows: Drs. Sedwick, Spencer, Curfman, Senger, Kemper, Low, Halley, Waring, and Downing. Mr. Harvey T. Sethman of Denver was chosen for the position, and due to the vision of the House of Delegates for the past few years, the office of Executive Secretary for this Society became a reality on June 1, 1929.

During the past winter the Committee on Public Policy has been active at the sessions of the legislature and as a result of their efforts no bill advocated by them was defeated, and no bill opposed by them was passed.

The cost of medical care is becoming a topic of greater importance each year, if we are to judge by the numerous articles on this subject appearing in prominent lay and medical journals, and the question of "State Medicine" naturally follows.

I asked Dr. Maurice Rees, dean of the University of Colorado School of Medicine and Hospitals, and chairman of the Committee on the Cost of Medical Care for suggestions for my report on this subject. His reply covers the ground so thoroughly, that I quote it verbatim:

"During the recent years the medical profession has had a great deal to say regarding 'State Medicine,' a term which has never been satisfactorily defined. In speaking of 'State Medicine' the physician usually refers to anything which he considers as a possible factor in limiting his income.

(Continued on page 417)

*An index to the proceedings of the House of Delegates will be found on page 446.

REPORT OF COMMITTEE ON CREDENTIALS

Your Committee on Credentials has nothing inadvance of the session to report except the following certified roster of accredited delegates andalternates to the Fifty-Ninth Annual Session:

Society—	No. of Members Dec. 31, 1928	No. of Delegates	Accredited Delegates	Accredited Alternates
Arapahoe	4	1	W. C. Crysler	G. C. Moore
Boulder	43	2	W. K. Reed	R. H. Dietmeier
			C. E. Sidwell	Paul Farrington
Chaffee	7	1	G. H. Curfman	G. W. Larimer
Delta	22	1	A. C. McClanahan	(F. A. Erich, 1st
				(L. A. Hick, 2nd
Denver	572	23	W. H. Halley	L. V. Sams
			L. W. Frank	Edward F. Dean
			C. H. Darrow	G. M. Blickensderfer
			H. S. Finney	G. W. Miel
			C. F. Kemper	Charles Jaeger
			G. A. Moleen	C. T. Burnett
			J. M. Shields	S. D. Van Meter
			J. A. Philpott	W. M. Bane
			W. C. Finnoff	A. J. Chisholm
			T. E. Beyer	M. Katzman
			J. S. Bouslog	Henry Wilcox
			J. G. Ryan	W. B. Yegge
			R. P. Forbes	W. W. King
			Frank Rogers	Philip Hillkowitz
			H. R. McKeen	H. G. Garwood
			Harry Baum	B. B. Jaffa
			Edward Delehanty	G. E. Cheley
			W. J. Robb	Philip Work
			C. J. Lowen	R. G. Smith
			Hugh Taylor	R. C. Price
			D. H. O'Rourke	I. D. Bronfin
			H. I. Barnard	P. W. Whiteley
			G. Heusinkveld	
El Paso	107	5	F. A. Faust	W. A. Campbell, Jr.
			O. R. Gillette	T. J. Evans
			Z. H. McClanahan	H. W. Woodward
			A. C. Hollard	J. B. Crouch
			C. E. Harris	P. O. Hanford
Fremont	18	1	C. H. Graves	R. C. Adkinson
Garfield	12	1	R. B. Porter	W. R. Tubbs
Huerfano	13	1	G. M. Noonan	J. R. Fowler
Kit Carson	6	1	W. L. McBride	H. L. Williams
Lake	5	1	F. N. Cochems	F. J. McDonald
Larimer	30	2	P. J. McHugh	S. A. Joslyn
			W. B. Hardesty	P. C. Taylor
Las Animas	18	1	John R. Espey	Ben Beshoar
Mesa	20	1	G. C. Cary	E. H. Peterson
Montrose	8	1	C. G. Brethouwer	C. E. Lockwood
Morgan. (The Morgan County Society has failed to make any report this year, is therefore declared delinquent and not entitled to any representationin the House of Delegates.)				
Northeast Colorado	22	1	J. W. Kinzie	W. E. Hays
Northwestern Colorado	9	1	B. M. Bailey	E. L. Morrow
Otero	23	1	C. E. Morse	George Sorenson
Prowers	18	1	L.E . Likes	N. M. Burnett
Pueblo	70	3	F. M. Heller	R. H. Finney
			George Myers	George E. Rice
			H. T. Low	C. N. Caldwell
San Juan	21	1	A. L. Burnett	D. E. Maynard
San Luis Valley	9	1	C. A. Davlin	
Weld	37	2	N. A. Madler	J. A. Weaver
			H. W. Averill	

Your Committee on Credentials is ready to serve on any question of credentials which may arise during the session.

Respectfully submitted,

F. B. STEPHENSON, Chairman;
JOHN P. McDONOUGH,
GEORGE M. NOONAN.

PROCEEDINGS OF THE HOUSE OF DELEGATES

(Continued from page 415)

"The general public is also greatly concerned, and numerous articles are appearing in our magazines and daily press on the high cost of medical care. The physician on the one hand feels that his income is in jeopardy; on the other hand, the lay public feels that the cost of being sick is exorbitant.

"What are the factors in this unhappy situation? The physician and the lay public both have an opportunity to solve this problem. A well-financed and exceptionally well-manned national committee has undertaken this study. This committee is known as the Committee on Cost of Medical Care.

"Many physicians are still inclined to treat the work of this committee with indifference or with suspicion. Are we afraid of the facts that may be revealed? If we are, there is something wrong with our profession. Is it not probable that the investigation will vindicate the physician and reveal to the public the very slight increase in professional fees as compared with the very marked increase in hospital and nursing costs? Does the public realize that in the State of Colorado alone our physicians are giving millions of dollars worth of free professional service every year?

"From a purely selfish viewpoint the medical profession should support wholeheartedly the investigation of the Committee on Cost of Medical Care, since the facts which are to be made public will undoubtedly lead to a far better understanding between the medical profession and the lay public, and the data thus obtained will give the physician and layman substantial premises on which they may base any discussions that may arise. The medical profession of Colorado should show a greater interest and greater co-operation in connection with the work of this most worthy committee."

I am anxious that the Colorado State Medical Society should increase itis annual appropriation for the Medical Library of $150.00 to $500.00 for the ensuing year.

The Library has been rendering a considerable amount of service to the members of the State Medical Society outside of the City and County of Denver. This service has been rendered both by mail and to members making personal calls at the Library. It is confidently believed that the usefulness of the Library, to members of the State Medical Society, can be very greatly enlarged and a campaign of publicity will be undertaken during the coming year with the intention of showing the members of the State Medical Society what valuable service the Library can render them. This service, in detail, is as follows:

1. Loans by title: Upon request, any book or journal will be loaned for one week.
2. Reference Service:
   (a) Upon request, literature on any stated subject will be found and forwarded.
   (b) As received, current journals will be searched for articles on a stated subject and appropriate issues forwarded to those members requesting this service.
3. Journal Service: Two hundred and twenty-eight journals are received regularly. Any member of the State Medical Society may select a journal or a number of journals which he would like to receive regularly and these journals will be loaned for one week.

One very important reason for increasing the annual appropriation is that the cost for medical books and journals has gone up tremendously since the war. For example, a German book of any importance will cost from $25.00 to $50.00. German journals are in proportion with an average increase of 70 per cent since the war. The British Medical Journal cost $6.00 before the war and $16.75 since the war. The average American monograph of 500 pages costs at least $8.00. The systems of medicine average $80.00, etc.

In contrast with this great increase in the cost of periodicals and books in the past few years let us contrast the appropriations authorized by the House of Delegates during the same period of time. In 1915 the appropriation was $200.00, in 1916, $150.00; in 1917, $210.00; in 1918 and each succeeding year to 1928, inclusive, the appropriation has been $100.00.

I know you will agree with me that, bearing these prices in mind, the present appropriation is all out of proportion to the cost of the medical books and to the service being rendered at the present time. I would like also to see the State Medical Society offer the courtesies of the Library to our colleagues of the Wyoming State Medical Society under such conditions as the Trustees of the Medical Society of the City and County of Denver, now curator of the Colorado State Society Medical Library may decide upon.

I express my appreciation and thanks to the Committee on Scientific Program and to the Committee on Local Arrangements for their assistance in contributing very largely to the success of the meeting in Colorado Springs in 1928, which had a registration of 378 members and 53 visitors, one of the largest in the history of the Society.

The various committees for this year have been untiring in their interest and efforts to fulfill their duties and I extend to them the thanks of the Society as well as my own.

On behalf of this Society I thank Dr. Royal W. Calkins, Speaker of the House of Representatives, and Dr. Emory J. Brady, Chairman of the Committee on Medical Affairs, for their loyal co-operation with our Committee on Public Policy.

S. B. CHILDS,
President.

President Childs (Continuing): "This report, naturally, will be referred to the Reference Committee on Reports of Officers.

"The next in order is the Secretary's report."

MEDICAL SECRETARY'S REPORT

My report at this time will be limited to the simple statements that up to the time of the employment of our Executive Secretary on June 1st, my efforts aside from routine office duties were devoted largely to the meetings of the Executive Committee and the auxiliary members appointed by Dr. Childs to assist in selecting an executive secretary. It is my pleasure to record that my most important dream in connection with the Colorado State Medical Society has finally been realized during my tenure of office, and that our new Secretary, Mr. Harvey T. Sethman, is now functioning and that I believe there are brilliant prospects for the Society's progress from this time forward.

I am pleased to step out of office at the end of nine years' service with the feeling that the affairs of the Society will be carried on more efficiently than they have been in the past.

The statistical report of membership and fi-

nances will be left to the Executive Secretary at this time.

F. B. STEPHENSON,
Secretary.

Dr. Stephenson (Continuing): "I would like to say that I have asked Mr. Sethman, with Dr. Childs' consent, to make part of this report tonight, and then to talk to you for as long a time as his notes may require, providing it does not extend beyond the limits the president will allow. He will tell you something of his experiences during the visits he has made to other state societies, and then he will give you a view of what he expects to be able to do for our Society for the future."

President Childs: "The next in order is the Executive Secretary's report, and it gives me great pleasure to present to you your Executive Secretary, Mr. Harvey T. Sethman."

Mr. Sethman, Executive Secretary: "Dr. Childs, and gentlemen of the House of Delegates: Before I go into my report proper, I want to take this opportunity for thanking you and the officers of the Society for the confidence you have placed in me in appointing me as your Executive Secretary.

"My acquaintance with your profession was rather limited before I assumed this position, and I therefore feel more deeply the honor that has been conferred upon me.

"I look upon the position much in this way: You have entrusted me with the growth of organized medicine in Colorado as represented by your Society, with the expansion of your activities that tend to advance the science of medicine and promote public health, with the widening of your influence and usefulness as an organization. I look upon the position as an opportunity to do worth-while things coincidentally with earning one's living, an opportunity to be of real service to the greatest of the professions, an opportunity to help place the profession in its proper high place in the estimation of the lay public. That is how I look upon the executive secretaryship, and so long as you see fit to continue me in this position, you will find me dedicated to that idea."

REPORT OF THE EXECUTIVE SECRETARY

Strictly speaking, my report to you is divided into four parts. In part one I will read the customary statistical report on membership and on that part of the Society's finances which comes under the Secretary. In part two I will endeavor to give you the highlights of a tour of inspection and study in which I visited the outstanding state societies that for years have had executive offices in operation. Part three will be a brief resume of a recommended program for the Society for 1930, together with an explanation of the activities already instituted by the new office under authority of your Executive Committee, and part four will be a tentative budget for the remainder of 1929 and for the coming fiscal year. I have so divided the report because part one naturally should be referred to your Reference Committee on Reports of Officers, parts two and three I would suggest should be referred to the special Committee on Amendments to the By-Laws, and part four, of course, should be referred to your Committee on Appropriations.

Part One.

Following is a statistical statement of membership and finances from Sept. 1, 1928, to Aug. 31, 1929:

Paid memberships for 1929 by constituent societies:

Arapahoe	5
Boulder	42
Chaffee	6
Delta	21
Denver	567
El Paso	100
Fremont	18
Garfield	13
Huerfano	13
Kit Carson	6
Lake	6
Larimer	31
Las Animas	19
Mesa	18
Montrose	7
Morgan	7
Northeast	21
Northwestern	9
Otero	23
Prowers	18
Pueblo	72
San Juan	22
San Luis	21
Weld	39
Total	1,104

1928 reinstatements and new members from Sept. 1, 1928, report to Dec. 31, 1928:

Denver	6
El Paso	1
Garfield	1
Huerfano	3
Las Animas	2
Morgan	1
Pueblo	1
San Luis Valley	1
Total	16

Paid membership for 1929		1,104
Deaths of members paid for 1929	9	
Paid members transferred out	4	
		13
		1,091
Transferred in without dues		2
Active membership, Sept. 1, 1929		1,093
Active membership, Sept. 1, 1928		1,070
Gain in membership for 1929		23

RECEIPTS

Sept. 1, 1928, to Aug. 31, 1929

1928 Dues	$ 80.00	
1929 Dues	5,520.00	
Colorado Medicine	4,129.90	
Advance payments, space rentals, 1929 Session	60.00	
Miscellaneous	7.13	
		$ 9,797.03
Remitted to Treasurer		9,797.03

Receipts Divided Into Funds as follows:

General fund	$ 8,676.83	
Special fund	1,120.20	
		9,797.03

Vouchers Issued

Charged to general fund	$14,200.63	
Charged to special fund	3.62	
		$14,204.25

Assets in Keeping of Secretary's Office

Secretary's revolving fund, 1st Nat'l Bank	$ 200.00

Inventory	
Sept. 1, 1928 (estimated values)	$ 150.00
Increase during year	233.85
	$ 383.85
Less 10 per cent annual depreciation	38.38
Sept. 1, 1929	$ 345.47

Part Two.

When I assumed this position on June 1, 1929, the officers of the Society decided that it would be advantageous to send me on a trip to visit and study the outstandingly successful medical societies in the East—particularly those which for several years have had an executive office in operation and a full-time executive secretary handling the work.

Accordingly I made a 15-day trip, spending five days studying the myriad operations of the American Medical Association at Chicago, and spending one or more days at the respective headquarters of the state medical societies of Wisconsin, Indiana, Ohio, Pennsylvania, and Missouri. In the third part of this report I will endeavor to outline briefly a program for starting our Society on the progressive road that these other societies have taken, combining what I believe to be, and what your officers have approved as, the best points of these other states' activities. Before doing that, I will try to picture to you the high points in the operations of those societies. Should I try to go into much detail, I would keep you here all night and wear you out; I will touch only the stressed activities of each Society.

Wisconsin: J. G. Crownhart, the Executive Secretary and managing editor of the Journal, is a former newspaper man and has had his office in operation about four years. He has an assistant and a stenographer—mailing clerk, and employs a newspaper writer part time. Their suite of offices is close to the State Capitol in Madison. In this situation, Mr. Crownhart emphasizes more than do other societies the matter of personal service to members. He makes a special point of the ability of his office to obtain for members every conceivable sort of information available in the capitol that a member might desire, whether or not it is pertinent to organized medicine. I see no reason why we cannot gradually build up a similar service, and save many a doctor's time and expense in trips to the capitol.

I believe Mr. Crownhart must be ambitious to make his files second only to those of the American Medical Association—they may be that already. He has a most elaborate file of information on every medical subject and on nostrums and quackery. His office really is an efficient library of information pertinent to organized medicine.

He makes a special point of a monthly mimeographed bulletin to county society officers and committees, in addition to laying great emphasis on semi- and quasi-medical news items in the Journal.

He emphasizes particularly a library service that I want to dwell upon for a moment, for so far as I know it is unique to Wisconsin—and yet our own Society has all the potentialities for the same work and I thing we have failed to realize it. Wisconsin has worked out a plan of co-operation with the State Medical School Library. I do not believe it can be compared with our own library in either size or value, yet Wisconsin members get 50 times the service from their library that our members do from ours. The reason for our apparent failure is no fault of the library or librarian, it is simply lack of information as to what our library can do. We have the machinery, but we have never thrown it into gear. Let us take an example. Suppose you are an internist in Wisconsin. You have before you a peculiar case, difficult of diagnosis, one you have never heard of before. You write, wire, or telephone to the library, from any part of the state. You name to the librarian the probable diagnoses, one of which you think would apply. The librarian refers to an index, and in the next mail there goes out to you a new book or two and from one to a dozen recent journals containing the best papers on those particular subjects. You pay the postage both ways and that is the only cost. You can understand better than can I, a layman, what this must mean to the isolated doctor in the small community. You can see also what it means to the man called upon to prepare a paper on an intricate subject.

Now then, our library is and has been prepared for years to give this very service. Yet look at comparative figures: Our library receives possibly one such request a week. In Wisconsin it is perhaps 100 a month, three or four a day. With the help of Miss Goehring, our librarian, I hope to inform our members systematically as to just what our library can do for them. Eventually it must mean an additional employee for the library, but I'm sure you will agree with me that it is worth it.

This is not all, not one-tenth of the Wisconsin Society's service to its members, but we must hurry on.

Indiana: Thomas A. Hendricks, Executive Secretary, is, like Mr. Crownhart, a former newspaperman. To me the outstanding features of the Indiana Society are its systematic program of educating the public in matters of public health, and its highly efficient organization of the profession for the protection of scientific medicine and the public health in the legislature. Mr. Hendricks has two office assistants and maintains probably the best biographical and professional record of physicians of any of the states. Unlike most full-time secretaries, he has nothing to do with the Journal.

Indiana's system of public education is divided into two parts: articles prepared for newspapers and magazines, and radio lectures. I will not go into the radio subject for I believe the plan not applicable to Colorado at the present time. The Indiana Society has a bureau of publicity, corresponding to our Committee on Public Policy, which meets weekly in Mr. Hendricks' office. Hendricks prepares, and the bureau revises and approves, a weekly release on public health subjects. The release is sent, in mimeographed form, to every newspaper in the state. It is impossible right now to go into detail, but suffice it to say that the program has worked wonders in increased friendship for scientific medicine and increased respect for the Society and for the profession. It has helped build the membership. These bulletins are issued over the name of the Bureau of Publicity of the Indiana State Medical Association, without signature by any one physician, are highly ethical, and approved by the A. M. A.

Indiana's organization for legislative purposes is indeed intricate. We do not need such an elaborate plan for the present, but permit me to describe it. Indiana has 13 councillor districts. Each county has a legislative committee chosen by the county society. Each councillor names a district legislative chairman, from these committees. The district chairmen are supervised by a state legislative committee consisting of the president, exec-

utive secretary, and three others named by the president. The state and district committees bring about county meetings before the primary campaigns each two years, so that each county society, through investigations made by its committee, chooses the legislative candidates of both parties known to be favorable to scientific medicine. This information then is compiled by Mr. Hendricks, who prepares bulletins and mails them to every member of the Society. With this plan, many of the candidates antagonistic to scientific medicine are eliminated in the primaries. Where they are not, the committees conduct meetings of the profession and interested laymen in strategical places before the general election and line up support for the proper candidates, regardless of party lines.

By this sort of work—and I have only outlined it briefly—the profession's legislative work is mostly done before the legislature ever meets. They have found the answer to their legislative problems in just one word—organization.

Now let me go on to Ohio. With a membership of more than 5,000, Ohio has the most elaborate executive office of any I visited. Mr. Don K. Martin, the Executive Secretary, previously practiced law. He has a suite of offices in Columbus, a staff of employees, and extra help is called in during legislative seasons. Without going into detail I may tell you that from Mr. Martin and his assistants I learned about what I believe to be the best bookkeeping systems, voucher-check forms, and budget plans that could be installed in our Society. Your officers have already instructed Dr. Bortree and me to modernize our bookkeeping along these lines. I could repeat much of what I have said about the other societies and it would apply to Ohio, particularly concerning Mr. Martin's excellent management and promotion of the Journal, but I must hurry on.

When I come to Pennsylvania I have in mind particularly some detailed matters so similar to the same items in the Indiana Society that I do not know which one to credit. But from these two societies I believe I learned the secret of making the County Secretary's work easier. The methods these societies use for carrying on the heavy correspondence between State Secretary and County Secretary should be a revelation to those Colorado men who have held county secretaryships. In a nutshell—we now can use forms for submitting annual county reports that of their very nature obviate the necessity for bookkeeping by the County Secretary. We now can use forms that will do away with nine-tenths of the worrisome correspondence that falls to the lot of the County Secretary. Dr. W. F. Donaldson, Secretary of the Pennsylvania Society, kindly gave me samples of every form used by his Society for this sort of work, so our own preparation of them will be simple.

At the risk of being unfair to an outstanding society and its eminently successful secretary and journal editor, Dr. E. J. Goodwin, I am going to make little mention of my Missouri visit. Many of the Missouri Society's activities I have covered in remarks about the others, except in a number of matters that while very worth while to our new venture, I consider too detailed to take up your time. Missouri has an excellent plan for medical defense, as do several of the other states. On the advice of your officers I am postponing discussion of medical defense for another year. We have an ambitious program for 1930, if you approve of it. If all goes as well as I hope and expect that it will, a year from now I can come before you with a program for medical defense based primarily on Missouri's experience and partly on the experience of other states.

I hope you realize, and I hope that these five secretaries will realize, should they ever see this report in print, that I have touched only a few highlights. I realize I have not done them justice. I realize also that I have made no mention of what I saw and learned in my five days at the American Medical Association, under the tutelage of Dr. Olin West and his associates. Without any fear of being presumptuous as a layman, I can say that there is not one of you who would fail to admit you had had a liberal education in organized medicine if you would spend even a few days in the A. M. A. headquarters.

Part Three.

The third part of my report is what I call a recommended program for the Executive Office for the remaining months of this year and for 1930. Again I beg leave to omit considerable detail to save time, and will instead go into that detail with the committee which takes this report in charge.

As I mentioned before, this part of the report is closely interwoven with a proposed amendment to the By-Laws, outlining the duties of the Executive Secretary, which your Special Committee has drawn up for submission at tonight's meeting. It is just as closely interwoven, of course, with the tentative budget.

Here is the program in brief:

To put it in the words of Dr. Olin West, when he was talking to me about my new work, "The only reason for the existence of a medical society is found in the statement that it is organized to advance the art and science of medicine and to promote the public health," and then he added, "You can put it this way, too, that the Society's purpose is to help every doctor to be a better doctor."

The program, then, is simply a plan to put the Colorado State Medical Society in a position to do just that.

We need:

First, to build up our membership;

Second, to make our organization cohesive and responsive;

Third, to make our organization felt in public affairs; and

Fourth, to bring about increased public respect and admiration for and confidence in the medical profession.

1. To build our membership:

Install a comprehensive card-index register of every practicing physician in Colorado, both members of our Society and non-members. It should be a complete birth-to-death history of every physician. It will take months to make it complete and make it the last word in accuracy, but it can be done. I feel it is absolutely necessary. And it can be done now, whereas it could not have been done accurately before, because the State Board of Medical Examiners on Jan. 1 will put into effect the new registration law, and will cooperate with me in getting the necessary information about every doctor. Your Executive Committee has authorized me to take the preliminary steps toward this end.

Have the Executive Secretary visit every constituent Society at least once a year, helping in every ethical way he can to build the membership of those Societies, and explaining to the Societies the activities of his office and the State Society.

Emphasize, in the Journal and by bulletins, the services the State Society, through the Executive

Office, is able and eager to render to County Societies and to individual members. Study other State Societies to increase these services.

Emphasize, in the same way, the service our state library can render to members, and gradually build that service until every non-member will want to join.

Bulletinize lay publications and newspapers with educational articles on public health under authority of the Committee on Public Policy.

2. **To make the Society cohesive and responsive:**

Bulletinize the membership at times, and the officers, delegates, committees, and county officers and committees more frequently, on important activities of the Society and on any matters of moment to the profession. Impress on the County Societies the need of active officers, men willing to sacrifice a half-day of their time once in a while for the advancement of scientific medicine.

Concentrate all the management of Colorado Medicine except the work of a scientific editor in the Executive Secretary's office. Build interest in the Journal by publication of County Society activities, news about members, committees, and medical activities generally. Emphasize personal news in the Journal so that gradually members reading it will know who the other members are, what they are doing, will feel acquainted with them. Then eventually the Journal will be read more.

Build the advertising revenue of the Journal as much as possible, working toward the time when, instead of being a constant financial drain, the Journal can help support the executive office.

Change from the present system of financial reports, which I believe to be wholly inadequate, to an efficient, permanent, budget basis on a fiscal year corresponding to the calendar year. The Constitution and By-Laws now require this, but they have not been observed. Your Executive Committee has authorized the change.

By means of the foregoing—increasing membership, increasing advertising revenue for the Journal, operating on a budget basis—place the Society on a sound financial footing so that the day will not be far removed when the annual dues can be substantially reduced.

3. **To make the Society felt in public affairs:**

Here again I want to mention the value of issuing educational bulletins to lay publications.

Organize efficiently at the proper seasons for the protection of scientific medicine before the legislature, and for the advancement of medicine and public health through wholesome influence on the appropriate governmental agencies.

Let it be known that the Society in all parts of the state includes the ablest men of the profession, who can, when invited by lay organizations, address those organizations on matters pertaining to public health. Let me refer back here and mention that this is one of the emphasized activities of the Indiana Society.

4. **To bring about increased public respect and admiration for, and confidence in, the medical profession:**

Surely I need only say here that if points One, Two and Three of the program are carried out, No. Four will follow as a matter of course.

To bring this program about and put it in full operation, I would recommend:

1. The adoption of an amendment to the By-Laws, incorporating these ideas and outlining in some detail the duties and powers of the Executive Secretary. Such an amendment has been prepared by your special committee, appointed by President Childs under a resolution of the Executive Committee. In some respects the amendment includes more detail than I have given you here. I think it will be self-explanatory when the amendment is before you.

2. Adopt a budget appropriate to the constitutional fiscal year, as recommended by the Executive Committee, including therein the necessary appropriations for the Executive Office, Colorado Medicine, and various committees, to set the program in motion.

Part Four.

Therefore, I will now submit Part Four of my report, a tentative budget for your consideration. It has been prepared with considerable care, under the advice of your officers, Journal Editor, and several committee chairmen. I might add that, because this is the first budget of its kind for our Society, it estimates receipts most conservatively, and estimates expenditures most generously, with the hope in mind that at the end of the first year's operations an even greater savings can be shown than the budget would predict.

Tentative budget for remaining four months of 1929 (Sept., Oct., Nov., Dec.):

Cash on hand in General Fund		$4,135.98
Cash on hand in Revolving Fund		200.00
Estimated receipts up to Dec. 31, 1929:		
From dues		50.00
From Colorado Medicine		1,000.00
From exhibit space rentals		275.00
Total available for appropriation		$5,660.98
Appropriations:		
Executive Office, $1,950.00:		
Salary	$1,200.00	
Overhead	200.00	
Travel	500.00	
Stationery and mailing	25.00	
Miscellaneous	25.00	
		$1,950.00
Colorado Medicine, $2,380.00:		
Salaries	530.00	
Printing and mailing	1,800.00	
Miscellaneous	50.00	
		2,380.00
Annual Meeting, $850.00:		
Overhead	$ 350.00	
Guests	150.00	
Promotion	150.00	
Miscellaneous	200.00	
		850.00
Library		50.00
Treasurer's Office		50.00
Permanent equipment		600.00
		$5,880.00

This four-month budget indicates a General Fund deficit on Dec. 31. In view of what I said a moment ago about estimating receipts conservatively and expenditures generously, I believe the deficit would not exist in any case. However, your officers have pointed out to me that one of the principal reasons for creation of the Executive Office was the wish for greater public education in medical matters. If that is the feeling of this House, then part of the permanent equipment item, part of my salary, or part of the mailing and publicity items could with all propriety, I believe, be charged against the Special Fund, which the Treasurer's report will show is fast becoming

a wealthy fund. I will leave that entirely to you and your Appropriations Committee. It has been suggested that I draw the 1930 budget with this very idea in view, and so, now coming to that budget, you will see the effect.

Tentative budget for the fiscal and calendar year of 1930:

Estimated Revenue:	Total	Gen'l Fund	Colo. Med.	Sp'l Fund
1,050 dues at $10	$10,500	$7,350	$2,100	$1,050
Advertising and subs.	5,000		5,000	
Space rentals	500	500		
Interest	350	350		
Total	$16,350	$8,200	$7,100	$1,050

Appropriations for the year:

Chargeable to:	Total	Gen'l Fund	Colo. Med.	Sp'l Fund
Executive Office, $5,700:				
Salary	$ 3,600	$3,000		$ 600
Overhead	600	600		
Travel	800	800		
Statnry, mlg., supls.	400	200		200
Miscellaneous	300	300		
Colorado Medicine, $7,830:				
Salaries	1,980		1,980	
Printing and mailing	5,700		5,700	
Promotion	50		50	
Miscellaneous	100		100	
Annual Meeting, $900:				
Overhead	450	450		
Guests	250	250		
Promotion	100	100		
Miscellaneous	100	100		
Library	150	150		
Committee on Pub. Pol.	200			200
Treasurer's Office	50	50		
Permanent equipment	400	400		
Grand total	$15,230	$6,400	$7,830	$1,000
Gain or loss to funds by this budget:				
Estimated revenue	$16,350	$8,200	$7,100	$1,050
Appropriations	15,230	6,400	7,830	1,000
	$ 1,120 (Gain)	$1,800 (Gain)	$ 730 (Loss)	$ 50 (Gain)

I realize that it is difficult for you to visualize these figures as I have read them. And I won't take up your time further by going into each figure in detail. Instead, I will do that with your Appropriations Committee. There is one matter, however, that should be explained at this time. As you see, both the General Fund and the Special Fund will show a gain next year by this budget. Colorado Medicine is budgeted for a loss, a substantial one. It probably will in actuality show a much smaller loss than the predicted $730.00. The reason for so budgeting? It is this: If Colorado Medicine ever shows a bookkeeping profit, we will be up against the problem of making out income tax reports and explaining at great length to the collector of internal revenue. Colorado Medicine can and will become self-supporting. It can and will go beyond that, to the extent of paying part of the Executive Office salaries and upkeep. That is only fair, because I fully expect that from one-third to one-half of my time will be devoted to the Journal. So the problem is only one of bookkeeping and financial records. It is not a case of dodging federal taxes; it is merely a case of so arranging our budgets and records that it never becomes necessary to account to the government.

One other explanation of a budget matter. We are due for an increase of $1,100, roughly, in our reserve by the 1930 budget as drawn. So far as actual operating expense is concerned, the figure is really double that, for the budget includes, during the remainder of this year and during 1930, $1,000 for permanent equipment, equipment that will not have to be replaced in ten or fifteen years; items such as office furniture, mimeograph and addressograph, and steel filing cabinets. Comparison of your Treasurer's report with this budget will show that the increase in operating expense, by the year, over what it was before the Executive Office was established, is, roughly, $4,000—less than the increased revenue from increased dues, and less by far than the total prospective increased revenue.

I trust that this report has not taken an undue amount of your time. I have tried to give you a generalized picture of the Executive Office as I would like to see it in operation. I am thoroughly convinced of the soundness of the plan. It is inconceivable that I have not made some mistakes in detail, or that I will not make mistakes in the future. Those of the past and any in the future are and will be mistakes of the mind, not of the heart. I beg the cooperation, help and advice of all of you, and particularly of the officers and the County Society Secretaries, to the end that my mistakes may be as few as possible.

Respectfully submitted,

HARVEY T. SETHMAN.

President Childs: "In this connection, Dr. Stephenson has a few words he wishes to say."

Dr. Stephenson: "I simply want to say in connection with Mr. Sethman's report that for the four months ending January of next year, you must remember, we are still operating on the five-dollar basis, that the increase in dues does not take effect until the first of January next year."

President Childs: "You have now heard the report, which is very comprehensive, very clear, and the result of actual contact with successful working Executive Secretaries' offices, and I am sure that as you get to know Mr. Sethman better you will be as much pleased with his ideas and plans as I am, and be willing to cooperate with him as thoroughly as the Executive Committee, consisting of the President, Treasurer and Secretary of the Society, have taken it upon themselves to do in the time that has elapsed since June 1.

"This report will go with the other reports of officers to the Committee on Reports of Officers.

"I will next call for the Treasurer's report—Dr. Bortree."

REPORT OF THE TREASURER

Covering the Fiscal Year, 1928-1929

RECEIPTS

Balance on hand September 11, 1928		$12,538.92
Received from Secretary, dues	$ 5,601.00	
Received from Secretary, Colorado Medicine	4,129.90	
Space rentals	60.00	
Interest	478.97	
Sale of bonds	4,000.00	
Miscellaneous	6.13	
Total receipts	$14,276.00	14,276.00
		$26,814.92

DISBURSEMENTS

Secretary's Office:		
Secretary's salary	$1,066.67	
Clerical salaries	420.00	
Equipment and incidentals	895.75	
Total	$2,382.42	$ 2,382.42
Colorado Medicine:		
Editor's salary	$ 300.00	
Editor's commission	784.61	
Clerical salaries	600.00	
Printing and m'l'g	4,714.04	
Incidentals	87.04	
Total	$6,485.69	6,485.69
Annual Meeting:		
Reporting	$ 290.55	
Guests	211.80	
Badges and incidentals	283.85	
Total	$ 786.20	786.20
Library:		
Library budget	$ 150.00	
Books bought from Library Fund	68.95	
Total	$ 218.95	218.95
Committee on Public Policy	$ 62.90	62.90
Special Fund	3.62	3.62
Purchase of Securities:		
4th Liberty Bond	$1,031.72	
U. S. 4¼% Certificates	3,002.75	
Total	$4,034.47	4,034.47
Treasurer's Office:		
Bond	$ 25.00	
Safety deposit box	2.00	
Total	$ 27.00	27.00
Unclassified:		
Insurance	$ 3.00	
Revolving Fund	200.00	
Total	$ 203.00	203.00
Total disbursements	$14,204.25	14,204.25
Balance		$12,610.67

DISTRIBUTION OF FUNDS

Special Fund:		
Balance on hand September 11, 1928		$ 7,152.12
Dues delinquent	$ .20	
Dues, 1928	16.00	
Dues, 1929	1,104.00	
Total receipts	$ 1,120.20	1,120.20
Total		$ 8,272.32
Disbursements		3.62
Balance on hand		$ 8,268.70
General Fund:		
Balance on hand September 11, 1928		$ 5,111.86
Space rentals	$ 60.00	
Interest	478.97	
Dues delinquent	.80	
Dues, 1928	64.00	
Dues, 1929	4,416.00	
Colorado Medicine receipts	4,129.90	
By sale of bonds	4,000.00	
Miscellaneous	75.08	
Total receipts	$13,224.75	13,224.75
Total disbursements		14,200.63
Balance on hand		$ 4,135.98
Library Fund:		
Balance on hand September 11, 1928		$ 274.94
Books purchased over budget allowance		68.95
Balance on hand		$ 205.99
Division of Assets in Funds:		
General Fund		$ 4,135.98
Special Fund		8,268.70
Library Fund		205.99
Total		$12,610.67
Revolving Fund in Denver bank		200.00
		$12,810.67
Division of Funds in Bank:		
Bonds		$ 7,500.00
Savings account		4,965.03
Checking account		145.64
Total		$12,610.67
Revolving Fund in Denver bank		200.00
		$12,810.67

GAIN AND LOSS

Total assets August 31, 1929	$12,810.87
Total assets September 11, 1928	12,538.92
Gain	$ 271.75
General Fund:	
Balance on hand Sept. 11, 1928	$ 5,111.86
Balance on hand Aug. 31, 1929	4,335.98
Loss	$ 774.88
Special Fund:	
Balance on hand Aug. 31, 1929	$ 8,268.70
Balance on hand Sept. 11, 1928	7,152.12
Gain	$ 1,116.58
Library Fund:	
Balance on hand Sept. 11, 1928	$ 274.94
Balance on hand Aug. 31, 1929	205.99
Loss	$ 68.95

"August 31, 1929.

"This is to certify that I have this day personally examined the contents of Safety Deposit Box Number 505, in the vaults of the Colorado Springs National Bank, Colorado Springs, Colorado, which box is rented to the Colorado State Medical Society.

"In it I find present the following named securities:

"U. S. Fourth Liberty Loan Bonds, 4¼%:	
No. K01056890	$ 500.00
No. A01056891	500.00
"First National Realty Co. 5½% Bond:	
D 74	500.00
"Scruggs, Vandervoort, Barney Realty Co. 6% Bonds:	
Nos. 2251	500.00
2250	500.00
2249	500.00
2248	500.00
2247	500.00
2246	500.00

"U. S. Certificate of Indebtedness, Series TS-1929:

Nos. 2165	1,000.00
2166	1,000.00
2167	1,000.00
Total	$7,500.00

"COLORADO SPRINGS NATIONAL BANK,
"A. B. BARNEY, Assistant Cashier."

In reviewing the above figures, there are certain items which require detailed explanation.

The establishment of a Revolving Fund in the hands of the Executive Secretary was deemed necessary to permit him to pay small accounts from time to time without going through the more elaborate detail of the usual expenditures. All such accounts are referred to the other officers at the end of the month. This fund is kept at $200, but is in a Denver bank, where it is more readily available than if in the hands of the Treasurer.

There has been one custom which is a source of loss to the Society and which is contrary to our By-Laws. These latter require immediate remittal of membership fees to the State Society by the County Societies, yet some Societies have retained funds and remitted on a quarterly basis. Although the loss in interest on the account may not be large, yet it is a condition which should be rectified and County Secretaries should be instructed to remit membership dues within thirty days of their receipt.

Owing to the fact that the annual dues were not increased this year, as authorized, there was no marked increase in receipts over last year. The full-time Executive Secretary was installed June 1, and the establishment of this office has resulted in a marked increase in expenditures. As a result, we find the end of the year shows only a very slight increase in assets over last year's report. This condition of increased expenditures will further decrease our assets, particularly in the General Fund, for the remainder of this calendar year and may virtually exhaust the latter before the increased dues are received early in 1930. We believe, however, that all obligations can be met until the receipts are readjusted.

The establishment of the office of full-time Secretary has required expenditures in the way of furniture, filing cases, etc., which has enlarged our expenses on this office to the amount of $233.85. Still further expenditures are needed to put the office on an efficient basis. This expenditure will not be as great in the future and should be considered in the form of an investment rather than ordinary maintenance.

Since a large portion of the activities of the full-time Secretary will be educational in their nature, it would seem fitting that at least a portion of his salary be taken from the Special Fund instead of all from the General Fund. The Special Fund is increasing more rapidly than any possible demand would require and is already more than sufficiently large to meet any emergency. The Treasurer would suggest that from $30 to $50 per month of the salary be taken from the Special Fund, the balance from the General Fund.

The Colorado Medicine account shows expenditures for a full twelve-month period amounting to $6,485.69. The receipts, which cover only an eleven-month period, were $4,129.90, to which should be added 1,104 members at $2.00 a member, making total receipts for the Colorado Medicine of $6,337.90. This would indicate a deficit for the year of $147.79, which is a much better showing than Colorado Medicine has made at any previous time. Should the receipts increase on this account, it is possible that Colorado Medicine might show a profit within a short period. If so, the State Society might become liable for income tax on this account. A certain proportion of the earnings should properly be diverted toward meeting the salary of the full-time Secretary, since considerable of his efforts will be devoted toward financial management of this paper.

In conclusion, your Treasurer wishes to thank the other officers of the Society for the courtesy and consideration shown him during the past three years.

Respectfully submitted,
L. W. BORTREE, Treasurer.

President Childs: "This report will be referred to the Auditing Committee.

"The next in order is the report of the Delegates to the American Medical Association."

Dr. Gilbert: "Mr. President, I will have Dr. McKinnie present the report."

Dr. McKinnie: "Dr. Gilbert thought it might be well to give you a few running comments on a few of the things that happened, so that if you do read this report in the Journal you may understand a little more the scope of the work which goes on in the House.

"There was a resolution presented by Dr. William Allen Pusey—you all know who he is—Past President of the American Medical Association and a member of the House of Delegates from Illinois. Being there year after year he knows the business of the American Medical Association well and has very great interest in it. He presented a resolution which was considered by the House of Delegates in executive session.

"The Judicial Council was asked by the resolution to present to the House of Delegates at the annual meeting in 1930 a comprehensive statement for the guidance of the American Medical Association, concerning the practice of medicine by corporations, by clinics, by philanthropic organizations, by industrial organizations, by health demonstrations and by similar organizations, and concerning the relationships of physicians thereto. I think you will see what this resolution is driving at—that corporations and philanthropic institutions are getting more and more into the practice of medicine. You know that we have some institutions in the United States which are not doing this through philanthropy, but on a business basis. It is hard for our profession to think it, but it is true that organizations will get men to work on salary and those organizations then pay large dividends per year. That is where it is leading. It is not such clinics as we have in Colorado, or the Mayo Clinics; it is nothing of that kind; but certain eastern organizations that charge fees and hire physicians.. The physicians do the work and the corporations receive the money.

"Dr. Smithies presented to the House a recommendation that the American Medical Association pay the expenses of the State Delegates to the annual session. This, of course, had to be referred to the Board of Trustees, which passes on the expenditure of all moneys. They turned it down on the ground that they could not handle it; that there was no way of handling it; but now, after having been your Delegate, with very much honor and pleasure to myself, for sixteen years, it might be well for the State Societies to take it up. It is a big expense. Those of you who have been Delegates know that it is an expense to

go to these different meetings, stay at good hotels every year, sometimes entirely in different directions from those you want to go for a vacation. I don't know what it costs, but it is expensive, and I think this Society might well consider the paying of the expenses of its Delegates. I am not a Delegate now, so I can talk with you. I have been for sixteen years, but that is past. I do not expect any back pay.

"A motion was brought up by the Delegate from Minnesota, submitting a resolution which was adopted by the Minneapolis State Medical Association, disapproving the policy of the American Red Cross in authorizing Red Cross nurses to nurse patients under the care of cults. This, of course, was not approved by the committee to which it was referred, and the House of Delegates supported it—that is, they disapproved of the American Red Cross authorizing its nurses to treat patients under the care of cults.

"Dr. Thomas B. Throckmorton spoke on nervous and mental diseases and submitted a resolution in regard to expert testimony. The substance of that resolution is that whereas the House of Delegates of the American Medical Association has previously expressed its dissatisfaction with the present status of the medical expert opinion evidence, and has expressed its approval of the principles of the American Bar Association and the medical societies to correct, by remedial legislation and changes in court procedure, the present undesirable features of the introduction of such evidence.

"The Judicial Council, in its supplementary report, comes in and reaffirms its stand on the giving and taking of commissions between doctors, which is nothing more than fee splitting. They just reaffirmed this stand."

Dr. McKinnie then read his formal report.

REPORT OF THE DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION

The 80th Annual Sesstion of the American Medical Association was held in Portland, Oregon, from July 8 to 12, inclusive. The attendance was naturally not so large as one expects when the meetings are held in more centrally located cities, such as Chicago or St. Louis, where the largest attendance is always secured, but for all of the rather small attendance it was an exceedingly good and interesting session. The accommodations in the city were good, meeting places exceptionally good, and transportation well cared for.

The House of Delegates met, as usual, on Monday morning preceding the opening of the scientific meetings, and had addresses by the Speaker, President, President-elect, and received reports from the Board of Trustees, Secretary and the different councils—Judicial, Medical, Education and Hospitals and Scientific Assembly. Reference Committees were appointed by the Speaker, and after consideration of the different reports, which were referred to these different committees, the House adjourned at 1:00 o'clock to meet again on Tuesday morning. The reports had to deal almost solely with the routine working of the Association, which is always printed in the Journal, and should not be reviewed at this time. One very interesting report was that of J. N. Henry of Pennsylvania, who read the report of the Committee on the Care of Indigent Physicians. The interest of that is that New York state several years ago established a home for indigent physicians, and finding that it was not being used, wished the Association to take over the management, care and responsibility of the home, but also added the provision that the Association establish a home for indigent physicians in every state. The need for such institutions was carefully gone into a year ago and found that for all of the 48 states there were not enough indigent physicians who would avail themselves of it to even warrant the maintaining of one home, so that the committee recommended that the Association do not accept the offer. This was discussed at very great length, but the recommendation of the committee maintained.

The report, and especially the supplementary report of the Judicial Council, is well worth your consideration, which you will find in the July 20 number of the Journal. This takes up the medical care granted students in the different universities. This is being looked upon skeptically by many physicians, feeling that it is one more wedge entering the practice of medicine, tending toward the socialization of medicine.

The Tuesday session of the House of Delegates was devoted to hearing and acting upon the reports of the Reference Committees. Nothing of any great consequence was brought up this year and even the row over alcohol was very much more mild than usual. Some of the leaders apparently are losing either their interest or their endurance.

The Thursday session was devoted to the hearing of the supplementary reports of the committees and last end business of the meeting, and the election of officers, which resulted in the election of Dr. Wm. Gary Morgan, Washington, President-elect; Dr. Ernest Sommers, Portland, Oregon, Vice President; Dr. Olin West, Chicago, Secretary; Dr. Austin Hayden, Chicago, Treasurer; Dr. Fred C. Warnshuis, Michigan, Speaker; Dr. A. C. Bulson, Jr., Indiana, Vice Speaker.

Trustees: Dr. D. Chester Brown to succeed himself; Dr. Allen H. Bunce to succeed Dr. E. H. Cary, Texas.

The sessions put on rather exceptionally interesting programs, and the attendance was remarkably good, and especially noteworthy in the fact that the halls remained well filled until the very end of each program. The scientific exhibit is getting better and better, and is worthy of a trip to the Association meetings if for no other reason than to go through this remarkable exhibit. The commercial exhibit was large and very representative—foods, instruments, books, clothes, everything desired by physicians or hospitals being found on exhibition.

Detroit was selected for the next annual session.

O. M. GILBERT,
L. H. McKINNIE.

President Childs: "We are indebted to Dr. McKinnie for this very interesting report, and it will be included with the reports of the other officers and submitted to the Committee on Reports of Officers.

"The next order of business is the report of the Council. Dr. Lingenfelter is not present, so Mr. Sethman will read the report."

REPORT OF THE COUNCIL

Your Council begs leave to report that no questions of ethics or differences between members or constituent Societies have been presented to it during the year, and that, therefore, it has held no meetings since the annual meeting at the Fifty-eighth Annual Session in September, 1928.

Your Council believes that the year's record for friendly and fraternal relations within the profession has been an enviable one and that the

Society is now in a position to grow substantially and expand its usefulness as never before.

Respectfully submitted,
G. P. LINGENFELTER, Chairman.

President Childs: "That report will also be submitted to the Committee on Reports of Officers.

"The next in order is the report of Standing Committees. The first is the Committee on Scientific Work—Dr. Waring."

REPORT OF THE COMMITTEE ON SCIENTIFIC WORK

The committee has the honor to submit the following report:

The program in preliminary form appeared, as usual, in the July issue of Colorado Medicine. During the last week of August the program, in its final form, was mailed to every member of the Society. Mr. Harvey Sethman, the Society's new Executive Secretary, supervised the preparation of the program and its passage through the hands of the printer.

Our visiting speakers number six and include:

Dr. H. E. Robertson, chief pathologist at the Mayo Clinic.

Dr. John B. Carnett, professor of surgery, University of Pennsylvania.

Dr. Florence Sabin, from the Rockefeller Institute for Medical Research.

Dr. W. G. Lennox, research fellow in neuropathology, Harvard Medical School.

Dr. Alexis F. Hartmann, Washington University, St. Louis.

Professor Charles Richet from Paris, France.

Total expense in securing these speakers will approximate $600.00.

Respectfully submitted,
JAMES J. WARING, Chairman.
FRANK SPENCER,
E. D. DOWNING,

President Childs: "We will take it for granted, unless there is objection, that the reports of the Standing Committees will be referred to the Reference Committee on Reports of Committees.

"The next is the report of the Committee on Public Policy; Dr. Kemper."

REPORT OF THE COMMITTEE ON PUBLIC POLICY

We, the Committee on Public Policy, submit the following report:

The Twenty-seventh General Assembly of Colorado was called upon to consider some bills materially affecting public health and our professional interests within the state.

Among these was House Bill No. 422. This bill pertained to the competency of witnesses in cases of privileged conversation. The bill was presented by our committee and became a law.

House Bill No. 19 provided for a separate board for licensing chiropractors. This bill was vigorously opposed by our committee. It failed to become a law.

Senate Bill No. 79 provided that medical prophylaxis in school be optional with parents rather than with the constituted health authorities as is now the case. It would materially have handicapped community health programs and health education in various sections of the state. This bill was also opposed by our committee. It failed to become a law.

House Bill No. 43, presented by others than members of this committee, provided for the annual registration of all who practice the healing art within the state. The bill originally stipulated a registration fee of five dollars, but this was later reduced to two. The committee was by no means agreed upon the merits of this bill, nor was it at all certain as to the sentiment of the average member of the State Society. Despite the fact that the House of Delegates had advocated the annual registration on previous occasions and that some county organizations instructed their legislators to support it, there was enough expressed opposition to the measure to question the advisability of using our influence to have the bill passed. We conceived it our duty, however, to acquaint thet legislature of the action of this body, of various County Societies and the views of individuals for and against annual registration. The bill was finally enacted. Contrary to prevailing opinion, apparently, it affects members of all cults as well as those of the regular profession. The registration fee is two dollars, which becomes effective in 1930.

The committee was loyally and effectively supported in its efforts by Doctor Royal W. Calkins, Speaker of the House, and Doctor E. J. Brady, Chairman of the Committee on Medical Affairs of the House, both honored members of the Colorado State Medical Society.

Out of this legislative experience certain interesting conclusions might be drawn of possible value to future members of this committee and the Society at large.

One may be stated as follows: It is often a greater problem to determine the wish of our Society than it is to secure favorable consideration of matters of medical interest at the hand of the State Assembly. This state of affairs is entirely avoidable and ought to be corrected at once. To this end we therefore suggest for your deliberation and action the wisdom of calling a special meeting of the House of Delegates to meet some time late in December or early in January preceding the meeting of the General Assembly. Such a meeting would enable a representative and authoritative body to propose legislative measures of interest to the profession, and to consider the merits of measures proposed by others affecting our practice.

Such action would give the Committee on Public Policy or its representative in the legislature a clear understanding of what the physicians actually want.

EDWARD JACKSON,
HENRY SEWALL,
EDW. F. DEAN,
CRUM EPLER,
JOHN R. ESPEY,
N. A. MADLER,
C. F. KEMPER, Chairman.

President Childs: "If there is no objection, this report will be referred to the Committee on Reports of Committees.

"The next report is that of the Committee on Publication, Dr. Elder."

Dr. Moleen: "Mr. President, I have been asked to present the report of the Publication Committee for Dr. Elder."

REPORT OF THE PUBLICATION COMMITTEE

From Sept. 1, 1928, to Sept. 1, 1929, there have been published twelve issues of "Colorado Medicine," aggregating 740 pages of printed matter, including the covers. Of this space 456 pages were devoted to reading matter and 284 pages to advertising.

The reading matter included eighty-six original articles, of which seventeen were read at the last session of the Society. There were twenty-seven pages devoted to editorial comment, thirty-

six pages to reports of Societies and news items, and eight pages to book reviews; the proceedings of the House of Delegates, membership lists, etc., occupied approximately thirty pages.

The Wyoming State Medical Society published ten articles and eighteen pages of editorial comment, which are included in the above report.

The cost of printing and mailing from Aug. 1, 1928, to Aug. 1, 1929, was $4,637.26, being an average of $386.43 per issue.

The revenue accruing to the Journal is derived from advertising receipts and from the per capita appropriations made by the two State Societies. These items in all amount to $6,369.90, the per capita appropriation being $2,240.00 from Colorado, $343.84 from Wyoming, and the receipts from advertising being $3,786.06.

RECAPITULATION

Appropriation ($2 per capita), Colorado	$2,240.00
Wyoming subscriptions	343.84
Advertising, sale of copies, etc.	3,786.06

EXPENDITURES

Salary of Editor	$ 300.00	
Salary of Editor's Secretary	600.00	
Printing and mailing of "Colorado Medicine"	4,637.26	
Commissions on advertising	784.61	
Incidental	83.29	
Deficit		35.26
	$6,405.16	$6,405.16

During the year Colorado Medicine received sixty books for review and sixty-two volumes of exchange journals. All of these became the property of the Colorado State Medical Society and are available at the Library in Denver.

The committee feels that we and the Society at large owe a debt of gratitude to Dr. C. F. Kemper, Editor, for his untiring efforts in the editing and managing of Colorado Medicine. The Journal's enviable reputation among medical publications, we feel, is due largely to his work.

GEORGE A. MOLEEN,
C. S. BLUEMEL,
CHARLES S. ELDER, Chairman.

Dr. Moleen (Continuing): "I wish, Mr. President, in behalf of the committee, to say that it becomes our regrettable duty to relieve, at his request, the incumbent Editor. We do so with considerable regret, because he has filled this position with credit, has carried out our ideas with reference to the publication of the Journal, and has represented the thought of this Society in a most exemplary manner. The committee has before it the name of another Editor to succeed him, but that work has not so fully crystallized as to make it public at this time."

President Childs: "Do you make that as a motion?"

Dr. Moleen: "Yes."

President Childs: "Have you officially accepted the resignation of Dr. Kemper?"

Dr. Moleen: "Yes, we have."

President Childs: "Do I hear a second to this motion by Dr. Moleen that the resignation of Dr. Kemper, Editor of Colorado Medicine, be accepted by this Society?"

The motion was duly seconded.

President Childs: "Is there any discussion? Are you ready for the question? All those in favor say 'Aye,' all opposed 'No.' The noes seem to have it. I think the Society owes Dr. Kemper a vote of thanks for the successful manner in which he has edited the Journal, and we express confidence that he will reconsider his resignation.

"The next is the report of the Auditing Committee."

Dr. Reed: "We have no report as yet."

President Childs: "The Treasurer's Report is available to you, and if you will, please, at your earliest convenience, have your report ready.

"The next is the report of the Committee on Medical Education; Dr. Rees."

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION

To the Colorado State Medical Society::

The very complete report on medical education recently prepared by the American Medical Association and published in the Aug. 17 issue of the Journal renders any detailed report from your committee unnecessary. We are, therefore, submitting for your consideration only a brief summary of developments and trends in medical education.

At the present time there are seventy-four "A" class medical schools in the United States. Two schools probably will be added to this list during the next year, namely, the University of Southern California School of Medicine and the Duke University School of Medicine.

Last year the enrollment in our medical schools was 20,878. Those receiving the degree of Doctor of Medicine numbered 4,446. The average age of the graduate was 26.3 years.

During the summer of 1927 our medical schools received 23,590 applications for admission from 11,282 individual applicants. Of these applicants 6,000 were enrolled in the freshman classes in the fall of 1927. Three-fourths of these applicants denied admission were rejected because of unsatisfactory qualifications. It is estimated that at least one-half of these unqualified applicants will make up their deficiencies and will secure enrollment at a later date.

The increasing of the enrollment limits of our schools and the opening of several new schools would indicate that adequate provision is being made for all properly qualified applicants.

It is interesting to note that practically all schools are now taking into consideration the personality of the applicants. Several schools require that the applicants appear before the admissions committee. One school grades on the basis of 60 per cent for personality and 40 per cent for scholarship.

Eleven schools now require an internship before granting the M. D. degree. No school has added this requirement since 1923, and the present attitude is to consider this requirement a function of the state licensing boards rather than of the medical schools. Thirteen licensing boards now require the intern year.

A great deal has been said and written recently regarding the saving of time in medical education. No satisfactory solution has been found. Six schools are now on the quarter system, which makes it possible for a student working continuously through the year to shorten his course by nine months. A few schools permit their junior students to work through the summer months and finish their course in February of the succeeding year.

An increasing number of schools are requiring that the applicant have an academic degree before being granted admission. The purpose of this requirement is to reduce the number of applicants, rather than to increase the scholarship standard, since a recent investigation has shown that those students entering with only two years of premedical work have a medical scholarship

average slightly above that of students who have had four years of premedical training.

Several experiments in medical education are now in progress. The experiment which is being observed with most interest is the one initiated at the Yale University School of Medicine. Here the required work has been reduced to less than one-half the original required hours. The medical students are on the same basis as graduate students insofar as class attendance and selection of courses is concerned.

The former minimum requirement of 4,000 required hours for the four-year course is no longer adhered to, and several schools have reduced their required hours far below this figure.

The University of Colorado School of Medicine may be considered as one of the more conservative schools where an attitude of watchful waiting is being observed. The following data regarding this institution is submitted for your information:

The enrollment for the school year beginning Sept. 30 is as follows: Freshman year, 63; sophomore year, 49; junior year, 50; senior year, 44.

In selecting the freshman class the preference is always given to those qualified applicants who are residents of Colorado. Up to date there has not been a sufficient number of Colorado residents to fill the class. This year fourteen nonresidents were admitted to fill the class.

The undergraduate work of our medical school is now well organized and on a substantial basis. The next undertaking should be along the line of post-graduate work and extension clinics.

During the past year a two-month post-graduate course was offered in ophthalmology during the winter quarter. A four-week post-graduate course in psychiatry was given during the month of July. A three-day clinic course is offered each spring. All of these courses will be repeated during the coming year.

In addition to the above courses, there is also offered a two-year post-graduate course in ophthalmology, leading to the degree of Doctor of opthalmology.

The facilities of the school of medicine and hospitals are available at all times for the use of the physicians of Colorado. Physicians are invited to visit the clinics and laboratory courses and to use the library of the institution.

In conclusion, we may point out that medical education in Colorado could be improved by:

1. Developing more post-graduate courses.
2. Establishment of extension clinics on the North Carolina plan.
3. Extending the library service of the school of medicine to all parts of the state.

Respectfully submitted,
MAURICE H. REES, Chairman,
CHARLES N. MEADER,
L. H. McKINNIE.

President Childs: "This report will be submitted to the Committee on Reports of Committees.

"The Committee on Local Arrangements, Dr. N. A. Madler, will now report."

Dr. Madler: "Mr. President, I have no report to make other than what you see on the program."

President Childs: "Doctor, some of the men particularly desire information about the golf tournament tomorrow."

Dr. Madler then reported informally on entertainment plans for the Annual Session.

President Childs: "The next order of business is the report of Special Committees. I will call for the report of the Committee on Amendments to By-Laws; Dr. W. H. Halley, Chairman."

REPORT OF THE COMMITTEE ON AMENDMENTS TO BY-LAWS

To the President, Officers and Members of the House of Delegates:

Your committee respectfully submits the following amendments to the By-Laws of the Colorado State Medical Society and recommends their adoption as here set forth:

Amend Chapter VIII, entitled "Duties of Officers," Section 5 (as the same appears on pages 8 and 9 of the published Constitution and By-Laws of 1928), by striking Section 5 and inserting a new Section 5 to read as follows:

"Sec. 5. The Secretary shall perform the duties usual to such an office, provided, however, that when the office of Executive Secretary shall have been created by the House of Delegates and shall have been established and set in operation, the Executive Secretary, who need not be a physician, shall assume all the duties of the Secretary except such duties as are imposed on the Secretary by the Constitution."

Amend Chapter VIII, entitled "Duties of Officers," by adding thereto a new section to be known as Section 6, the same to read as follows:

"Sec. 6. In addition to the duties set forth in Section 5 of this Chapter, the Executive Secretary shall, under the supervision and guidance of the Trustees, Officers, and committees of the Society, act as general administrative officer and business manager of the Society. He shall attend the General Meetings of the Society and the meetings of the House of Delegates, the Trustees, and the Council, and shall keep separately the minutes of their respective proceedings. He shall be the secretary of all committees of the Society, assist them in the performance of their duties, and keep a record of their proceedings. He shall issue and send to lay publications such educational articles as may be prepared and authorized for general publication by the Committee on Public Policy, and shall secure and assign medical speakers to address (on invitation) lay organizations on subjects pertaining to individual and public health. When requested so to do he shall assist the constituent Societies in securing speakers or otherwise preparing programs. He shall at all times hold himself in readiness to advise and aid, so far as is practicable, all officers and committees of the Society in the performance of their duties or to carry out any of the purposes or policies of the Society. He shall be the custodian of the general papers and records of the Society, except such as properly belong in the custody of the Treasurer. He shall keep account of and promptly turn over to the Treasurer all funds of the Society which come into his hands He shall be bonded at the expense of the Society in such amount as the House of Delegates may require. He shall provide for the registration of members and delegates at each Annual Session. He shall, with the cooperation of the Secretaries of constituent Societies, keep a card-index register of all legal practitioners in the state, together with whatever information about each practitioner may be required by the needs of the Society and may be available, and he shall maintain by such card-index register and such additional records as may be necessary, an accurate record of each practitioner's status in relation to the constituent Societies. He shall transmit to the American Medical Association such copies of the aforementioned records as may be desired by the Association, together with such other available

information concerning the medical profession of this state as may be of value to the Association. He shall aid the Councillors in the organization and improvement of the constituent Societies and in the extension of the influence and usefulness of the Society. He shall, so far as is practicable, visit each constituent Society at least once annually, and shall, under the direction of the appropriate officers and committees, keep the officers and members of the constituent Societies informed of the activities of his office and of the profession generally through the issuance of periodic bulletins. He shall keep in close touch with all legislation, pending or enacted, and all activities of governmental officers and agencies, affecting the medical profession and public health, and shall keep the Society informed concerning such legislation and governmental activities. He shall have charge of the editorial and business management of the Society's publications, under the supervision of the Committee on Publication and the Scientific Editor of the official Journal. He shall conduct the official correspondence, notifying members of meetings, officers of their election, and committees of their appointment and duties. He shall supply the constituent Societies with the necessary forms and blanks for conducting their business and membership relations with this Society. He shall keep an account with the constituent Societies, charging against each Society its assessments, collect the same, and promptly turn the same over to the Treasurer. Under the supervision of the appropriate committees, he shall prepare and issue all programs. He shall, with the advice of the other officers and committee chairmen, prepare and submit annually to the House of Delegates a tentative budget for the Society for the ensuing fiscal year. He shall make an annual report of his activities to the House of Delegates and shall make such periodic reports to the Trustees as the Trustees may require. He shall perform such other or additional duties as may be required by the House of Delegates or the Trustees. He shall employ such assistants as the House of Delegates or the Trustees may direct. The Executive Secretary shall be under the employ of the Trustees, and in case of death, resignation, or removal for cause, the Trustees shall have the power to fill the vacancy. The amount of the Executive Secretary's salary shall be fixed by the Trustees with the approval of the House of Delegates."

Amend Chapter XIII, entitled "Constituent Societies," Section 6 (as the same appears on page 15 of the published Constitution and By-Laws of 1928), by adding to said Section 6 the following:

"It is provided, however, that, before action is taken by any constituent Society upon the application for membership of any physician, said physician's name shall be submitted by the Secretary of the constituent Society to the Secretary of this Society for comparison with the records of this Society and of the Biographical Department of the American Medical Association, thereby to ascertain that said physician's practice is not in conflict with the principles of ethics of the American Medical Association, and no physician shall be admitted to membership in any constituent Society whose name has not been thus approved by the American Medical Association."

Amend Chapter XIII, entitled "Constituent Societies," Section 10 (as the same appears on page 16 of the published Constitution and By-Laws of 1928), by adding at the end of the first paragraph of said section the following:

"He shall, so far as he is able, provide the Secretary of this Society with all information requested concerning his constituent Society, its members, and physicians, not members, within the jurisdiction of his Society. He shall promptly answer all inquiries directed to him by the Secretary of this Society. Whenever, in the opinion of the Trustees of this Society, the Secretary of a constituent Society has, through illness, absence from his Society's jurisdiction, failure to exercise due diligence, or other cause, been unable to perform his duties toward this Society, the President of the constituent Society, upon notice and request from the Trustees of this Society, shall appoint a member of his Society to perform the duties of the Secretary for such period of time as is necessary, in order that the work of this Society shall not be unduly delayed."

Your committee believes that the foregoing amendments to the By-Laws are necessary to the progress of this Society and to the proper conduct of the newly established office of Executive Secretary, and unanimously recommends their adoption as read.

Respectfully submitted,

SPECIAL COMMITTEE ON AMENDMENTS TO BY-LAWS.
WILLIAM H. HALLEY, Chairman.
JOHN R. ESPEY,
C. E. HARRIS,

President Childs: "It is necessary that these proposed changes to the By-Laws be laid over one day. The Chair will rule that this can be brought up tomorrow morning, if it is deemed advisable, this being the second and tomorrow the third of September.

"The next report is the report of the Committee on Social Medicine; Dr. Forbes."

REPORT OF THE COMMITTEE ON SOCIAL MEDICINE

Your committee begs to report that during the past year its services have been invoked on numerous occasions. During the legislative session your chairman appeared before one of the Senate committees relative to the discussion of certain bills having to do with public health nursing in Colorado; letters were also written to members of the legislature protesting against the passage of the anti-vaccination bill. Our committee cooperated with the Colorado Tuberculosis Association in its "Early Diagnosis Campaign" during the month of April. Letters were sent to the various County Societies suggesting that speakers be obtained from the Colorado Tuberculosis Association for the local Society meetings; Pueblo, Weld, Fremont, Boulder, Larimer, Mesa counties, and the Northeast Medical Society availed themselves of this opportunity to have tuberculosis specialists aid them in the educational program for early diagnosis.

Your committee is also interested in a new movement which is being sponsored by the Colorado Council of State-Wide Health Agencies. This is known as the "Blue Ribbon" Standard for Children, and has as its aim the dissemination of health education among parents and children. The annual periodic physical examination is one of the nine requisites for the child's obtaining a coveted blue ribbon. We feel that it is to the interest of every member of this Society to become familiar with this movement and give enthusiastic support.

R. J. McDONALD, JR.,
B. B. BLOTZ,
R. P. FORBES, Chairman.

President Childs: "This report will be referred to the Committee on Reports of Committees.

"The next is the report of the Committee on Medical Literature, by Dr. Markley."

REPORT OF THE COMMITEEE ON MEDICAL LITERATURE

This committee has to report the continued and gratifying growth of our Library during the past year, the additions being forty-two volumes by purchase and fifty-five volumes received through Colorado Medicine.

Fifty-six calls for service were received from members residing outside of Denver and one hundred and seventy-five items were shipped. Further service was rendered at the Library to one hundred and five members while visiting in Denver.

The committee takes this opportunity to again remind the Society at large of the service that its Library and the Library of the Medical Society of the City and County of Denver are prepared to render.

1. **Loans by Title**—i. e., books or journals will be sent upon request.

2. **Reference Service**—a. Literature on any stated subject will be found and shipped upon request.

b. The contents of current journals are examined when received and all articles appearing on a stated subject will be sent to those members requesting this service.

3. **Periodical List**—Two hundred and twenty-eight periodicals are received regularly. A member may designate a journal or number of journals which he wishes to receive regularly and which will be loaned for one week. (All loans, to be sure, subject to the rules of the Library, the only charges being the cost of transportation both ways.)

An exhibit of available material, consisting of approximately one hundred current issues of our periodicals and some recent books, has been arranged for this meeting in order to enable our members to examine this material at first hand.

A total of two hundred and eleven dollars and forty-five cents was expended during the year, being sixty-one dollars and forty-five cents in excess of the appropriation. This amount being charged to the Library Reserve Fund, leaving a balance of two hundred and twenty-four dollars and seventy-four cents.

Owing to the greatly increased cost of the medical books, the present appropriation of one hundred and fifty dollars yearly does not permit the purchase of certain much-needed volumes and this committee earnestly recommends that the appropriation for the coming year be increased to three hundred dollars.

Number of volumes in the Library Sept. 1, 1928	1,769
Volumes received through Colorado Medicine	55
Volumes purchased	42
Total volumes in the Library Sept. 1, 1929	1,866
Cost of volumes purchased	$211.45
Amount paid from appropriation	150.00
Excess above appropriation	$ 61.45
Library Reserve Fund, Sept. 1, 1928	$286.19
Excess charged to Reserve Fund	61.45
Balance in Reserve Fund, Sept. 1, 1929	$224.74

Total visitors residing outside Denver, Sept. 1, 1928-Sept. 1, 1929	105
Shipments requested, Sept. 1, 1928-Sept. 1, 1929	56
Items loaned, Sept. 1, 1928-Sept. 1, 1929	175

Respectfully submitted,

G. B. WEBB,
A. J. MARKLEY,
For the Committee.

SUPPLEMENT TO REPORT OF COMMITTEE ON MEDICAL LITERATURE

Books Purchased for the Colorado State Medical Society Library, Sept. 1, 1928 to Sept. 1, 1929

Assoc. Research Nervous and Mental Diseases: Cerebrospinal Fluid. 1926. Heredity. 1925. Multiple Sclerosis. 1927. Schizophrenia. 1928.

Brooks: Climate. 1926.

Cannon: Bodily Changes. 1929.

Clarke: Hydrogen Ion Determination. 1928.

Cooper: Contraception. 1928.

Cornell: Pernicious Anemia. 1927.

Cushing: Consecratio Medici. 1929.

d'Herelle: Immunity. 1927.

Duvall: Duodenum. 1928.

Foote: Minor Surgery. 1929.

Foote: Nurses' State Board. 1928.

Gross: Blood Supply. 1921.

Jerman: X-ray. 1928.

Kaufmann: Pathology. 3 vols. 1929.

Marriot: Chemistry. 1928.

Medicine Monographs: Birth Injuries. 1927. Epilepsy. 1928. Hypotension. 1927.

Morrow: Biochemistry. 1928. Nurses, Patients, Pocketbooks. 1928.

Oatman: Fundi Oculis. 3 vols. 1913.

Olson: Home Nursing. 1928.

Overend: Chest. 2 vols. 1920-8.

Park: Public Health. 1928.

Rivers: Filterable Viruses. 1928.

Sante: Pneumonia. 1928.

Schamberg: Infectious Diseases. 1928.

Sharpe: Neuro-surgery. 1928.

Speed: Fractures. 1929.

Waksman: Enzymes. 1926.

White: Smallpox. 1925.

Willius: Electrocardiograms. 1929.

Nelson Loose-leaf System: Public Health. 2 vols. 1929.

Books Received by Colorado Medicine for Review, Sept., 1928, to Sept., 1929

SAUNDERS

Boyd: Preventive Medicine. 3d ed. 1928.

Boyd: Surgical Pathology. 2d ed. 1929.

Crile: Surgery. 1928.

Garrison: History of Medicine. 4th ed. 1929.

Gleason: Nose, Throat and Ear. 6th ed. 1929.

Granger: Physical Therapeutics. 1929.

Jackson: Nose, Throat and Ear. 1929.

Labat: Anesthesia. 2d ed. 1928.

Lusk: Nutrition. 2d ed. 1928.

MacCallum: Pathology. 4th ed. 1928.

McGuigan: Pharmacology. 1928.

McKendree: Neurological Examination. 1929.

Mayo Clinic: Collected Papers. v. 20. 1928.

Morse: Infant Feeding. 2d ed. 1928.

Sollman: Pharmacology. 1928.

Wechsler: Neuroses. 1929.

Medical Clinics of North America. 6 vols.

Surgical Clinics of North America. 6 vols.

APPLETON

Keyes: Urology. 5th ed. 1928.

Barnhill: Nose, Throat and Ear. 1928.

Rutherford: Eye. 1928.

Yeomans: Proctology. 1929.

Livermore: Gonorrhea. 1929.

HOEBER

N. Y. Heart Committee: Heart Disease. 1928.
Malloch: William Harvey. 1929.
Forrester: Imperative Traumatic Surgery. 1929.
Warthin: Old Age. 1929.
Crummer: Heberden. 1929.
Harvey: Hemostasis. 1929.

DAVIS

Ibotson: Partnerships: 1929.
Ellis: Psychology of Sex. vol. 7. 1928.
Neustaedter: Clinical neurology. 1929.
Bram: Goiter Prevention. 1928.
Quigley: Cancer. 1929.
Loewenberg: Diagnosis. 1929.

LEA

Lawrason Brown: Tuberculosis. 5th ed. 1928.
Alexander: Bronchial Asthma. 1928.

BLAKISTON

Schamberg: Skin. 8th ed. 1929.
Halliburton: Physiology. 18th ed. 1929.

HARPER

Brooks: Angina Pectoris. 1929.

LIPPINCOTT

McClanahan: Pediatrics. 1929.

MAHORNER

Brown:: Thrombo-angitis. 1928.

ROCKEFELLER FOUNDATION

Medical Education. 1928.

WOOD

Stedman: Medical Dictionary. 10th ed. 1928.

STRATFORD

Chideckel: Strictly Private. 1928.

Dr. Markley (Continuing): "As you are well aware, this report would usually, in the course of events, have been made by Dr. Jayne, who recently passed away. This is probably the first occasion on which Dr. Jayne ever failed to carry forth any duty to which he had been summoned."

President Childs: "The next is the report of the Committee on Hospitals; Dr. Rees."

REPORT OF THE COMMITTEE ON HOSPITALS

Your Committee on Hospitals submits for your consideration the following report:

At the request of the American Medical Association, the committee made an inspection of the Presbyterian Hospital, Denver, to ascertain whether this institution meets with the American Medical Association requirements for internships. The committee reported that it was their opinion that this hospital should develop along the following lines before being recommended for internships: More complete hospital records, improvement of patient records, development of a library, installing of suitable quarters for interns, and the providing of an outside service in pediatrics.

This hospital has recently been inspected by a representative from the American Medical Association, and his report is practically in accord with the recommendations of your committee.

No other regular business has come before the committee during the past year.

The following brief summary of hospital service in Colorado will no doubt be of interest to our Society:

We have in Colorado 124 hospitals that have been admitted to the Register of the American Medical Association. These hospitals have a total bed capacity of 12,417 or approximately one hospital bed per eighty-five individuals.

Eleven Colorado hospitals, with a total bed capacity of 398, have been refused registration.

Denver has thirty-two registered hospitals, Colorado Springs fourteen, Pueblo six and Boulder four.

The distribution according to type of service is as follows:

General—Seventy-two hospitals with 5,929 beds.
Nervous and Mental—Eight hospitals with 2,990 beds.
Tuberculosis—Nineteen hospitals with 2,493 beds.
Maternity—Two hospitals with forty-five beds.
Industrial—Five hospitals with 152 beds.
Convalescent—Four hospitals with 324 beds.
Isolation—Three hospitals with 120 beds.
Children—Two hospitals with 131 beds.
Depts. of Institutions—Nine hospitals with 233 beds.

The distribution according to control is as follows:

Federal—Four hospitals with 2,397 beds.
State—Ten hospitals with 3,319 beds.
County—Six hospitals with 197 beds.
City—One hospital with ten beds.
City and County—Four hospitals with 625 beds.
Church—Twenty-six hospitals with 2,459 beds.
Fraternal—One hospital with 250 beds.
Industrial—Five hospitals with 357 beds.
Individuals and Partnership—Thirty-two hospitals with 680 beds.
Independent—Thirty-five hospitals with 2,123 beds.
Total Government Owned—Twenty-five, with 6,548 beds.
Total Non-Government Owned—Ninety-nine, with 5,869 beds.

Colorado has only twenty-three hospitals that have met the requirements of the American College of Surgeons. Only ten Colorado hospitals are approved for general internships, and four have the requirements for residencies.

An outstanding problem in Colorado at the present time is the care and treatment of indigent tuberculous patients.

Governor Adams has appointed a committee, consisting of five members of the last General Assembly, to make a study of this problem.

There is a growing tendency in other states to consider tuberculosis as a local rather than a state problem, and the indigent cases of tuberculosis are being cared for in the local hospitals of the towns and counties.

There are approximately 4,000 unoccupied hospital beds per year in the state of Colorado. If one-half of these beds could be used for tuberculosis our problem would almost disappear.

It has now been definitely demonstrated that communicable diseases can be cared for in general hospitals with no danger to other patients. During the past three years the Colorado General Hospital has treated, in its wards, practically all local types of communicable diseases without a single cross infection. Room isolation and proper nursing technique have made this possible. We believe that the physicians of Colorado should consider it as one of their duties to educate the public, as well as our hospital officials, so that it will be possible for us to care for tuberculosis and communicable diseases in our general hospitals.

A summary of the hospital situation in Colorado may be stated as follows:

1. Colorado is very amply supplied with hospitals for those patients able to pay the full cost for their care and treatment.
2. Colorado is deficient in facilities for the care and treatment of indigent tuberculous patients.
3. The general hospitals of the state should

utilize their present facilities for communicable disease cases.

4. The establishment of custodial and convalescent homes should be encouraged.

Respectfully submitted,
MAURICE H. REES, Chairman,
CHAS. O. GIESE,
O. S. FOWLER.

President Childs: "This report will be submitted to the Committee on Reports of Committees.

"The next is the Committee on Military Affairs, of which Colonel Hutton is Chairman. Colonel Hutton not being present, I will ask the Secretary to read the report."

REPORT OF THE COMMITTEE ON MILITARY AFFAIRS

The committee met July 29, 1929, and discussed all medical military affairs which might pertain to the interests of the Colorado State Medical Society.

The committee is in unanimous agreement that the Colorado State Medical Society should lend support to the coming convention of the Association of Military Surgeons, which is scheduled to meet in Denver Sept. 26, 27 and 28, 1929. This convention will be attended by members of the Association of Military Surgeons from various parts of the world, and the success of the meeting and the opinion the delegates may form of Denver and our western states will be contingent largely upon the attitude manifested by the medical profession in Colorado.

Your committee believes that all members of the Colorado State Medical Society who are eligible to membership in the Association of Military Surgeons by virtue of former commissioned rank in any of the governmental medical services, should be urged to acquire membership in this association.

With reference to the coming convention of the Association of Military Surgeons, your committee is of the opinion that each member of the Colorado State Medical Society should, in some way, extend hospitality to the visiting physicians. This can be done by attending the meetings, which are open to all, and by assisting in the entertainment of these guests by supplying an automobile for their use during one day of the convention.

Your committee recommends that these matters be placed before the members of the Colorado State Medical Society at the next meeting and that favorable action be taken thereon.

P. C. HUTTON, Chairman,
G. P. LINGENFELTER,
J. S. BOUSLOG.

President Childs: "The next is the Committee on Mental Hygiene; Dr. F. G. Ebaugh."

REPORT OF THE MENTAL HYGIENE COMMITTEE

Your committe of Mental Hygiene is pleased to report continued progress during the past year which has been very productive in furthering the mental hygiene program of this state. All members of the committee have taken an active part in the organization and establishment of the policies of the Colorado Society for Mental Hygiene. Since November, 1928, the membership of the State Mental Hygiene Society has increased to approximately 400 members. In the organization of the society the educational phases of the mental hygiene movement have been emphasized and a series of educational talks have been given under the auspices of this society. These lectures have been published in book form and distributed to the public in general and to all members of the profession who have joined the State Mental Hygiene Society. We feel that more members from all fields of medicine should join this organization and take a part in this important public health movement. Your committee feels that without the advice and cooperation of the medical profession the mental hygiene movement cannot achieve the importance and success it should.

The establishment of the base clinics as mentioned in our last year's report has continued and the results obtained in the examination of children can be summarized as follows:

Sterling Base Clinic

Date of Organization: February, 1928.
Organized by: Dr. George S. Johnson.
Number of children examined, 71.
Results obtained: Improved 35; unimproved 4; questionable 7; no follow-up on remainder either because patients were referred for consultation only, or because patients have moved.

Durango Base Clinic

Date of Organization: January, 1929.
Organized by: Dr. Franklin G. Ebaugh.
Number examined, 65.
Results obtained: Improved 32; unimproved 17; questionable 0; no follow-up on 15 who were seen in last clinic.

Greeley Base Clinic

Date of Organization: February, 1929.
Organized by: Dr. Franklin G. Ebaugh, Dr. Carl P. Wagner, and Dr. Hugh E. Kiene.
Number of children examined, 53.
Results obtained: Improved 21; unimproved 9; questionable 5; no follow-up on remainder because 16 of these were seen in first clinic and some moved away.

Arrangements are now being made to develop a base mental hygiene clinic at Rocky Ford to take care of this area. The cooperation of the profession and the public in general in the development of these clinics has been a very close one, and eventually your committee hopes that all areas of this state will have services of this type.

In conclusion the committee would like to suggest that the Colorado State Medical Society express its interest in the furtherance of mental hygiene in this state by making a substantial annual contribution to the Colorado Mental Hygiene Society. This might be done by taking an institutional membership in the Mental Hygiene Society and by renewing such membership from year to year by action of the House of Delegates.

C. S. BLUEMEL,
EDWARD DELEHANTY,
PHILIP WORK,
H. A. LA MOURE,
FRANK T. STEVENS,
FRANKLIN G. EBAUGH, Chairman.

President Childs: "The next is the Committee on Periodic Health Examinations; Dr. C. E. Harris".

REPORT OF THE COMMITTEE ON PERIODIC HEALTH EXAMINATIONS

Your committee on periodic health examinations submits that addresses were given as follows:

Northeast Medical Society at Sterling by Dr. N. A. Madler of Greeley.

Weld County at Greeley by Dr. O. M. Gilbert of Boulder.

Boulder County at Longmont by Dr. W. B. Yegge of Denver.

San Juan County at Durango by Dr. A. J. Nossaman of Pagosa Springs.

San Juan County open meeting at Pagosa Springs by Dr. J. B. Crouch of Colorado Springs.

El Paso County at Colorado Springs by Dr. F. M. Heller of Pueblo.

San Luis Valley at Alamosa by Dr. F. M. Heller of Pueblo.

Arkansas Valley at Pueblo by Dr. C. E. Harris of Woodmen.

Pueblo County at Pueblo by Dr. C. E. Harris of Woodmen.

Denver County at Denver by Dr. C. E. Harris of Woodmen.

In most instances the societies visited have approved the principle of the periodic health examinations but it has been impossible to find how much follow up work has been done if any.

Your committee recommends that during the coming year we try to interest those societies which have given no consideration to health examinations.

Considering the vast area of our state your committee believe it could be covered more efficiently if the several councillors would assume an active interest in the matter. The work should be carried on to the end that both the profession and the public be better educated regarding the possibilities of the periodic health examination.

Respectfully submitted,
F. M. HELLER,
J. B. CROUCH,
C. E. HARRIS, Chairman.

Dr. Harris: (Continuing) "Mr. President and Gentlemen: I ask your indulgence for just a moment. This chart was made out by Dr. Downing (Chart presented.) The plain red represents those sections from which we have received satisfactory responses. The green areas represent the territories from which we have received no report or correspondence from the secretaries of the county societies. I just wish to say that Mr. Sethman has his work cut out for him, and I sincerely hope he will have better luck in getting responses from the secretaries than I have had in the last year, and I trust the delegates will go back home and try and elect some secretaries who will get on the job and stay on the job, to the end, that the State Society may go forward a little more efficiently."

President Childs: "The next is the report of the Committee on Co-operation with the State Pharmacal Association."

REPORT OF THE COMMITTEE ON CO-OPERATION WITH THE STATE PHARMACAL ASSOCIATION

Your committee to co-operate with the State Pharmacal Association being in substance, under ordinary circumstances, a courtesy committee, yet ready and willing to act should occasion require, and not having been called upon to act during the past year, beg leave to report a general feeling of co-operation and good fellowship as existing between the two bodies.

Respectfully submitted,
M. D. BROWN,
H. W. STUVER, Chairman.

President Childs: "The next is the report of the Committee on Cost of Medical Care; Dr. Maurice Rees."

REPORT OF THE COMMITTEE ON COST OF MEDICAL CARE

A little over two years ago the National Committee on the Cost of Medical Care was organized largely through the efforts of Dr. Ray Lyman Wilbur. The purpose of this organization is to make a detailed study of the economic aspects of the care and prevention of illness.

The national committee now consists of fifty-two members. Twenty-five of the members hold the degree of Doctor of Medicine.

The committee is subdivided as follows: Executive committee, eight members; private practice, fourteen members; public health, six members; institutions and special interests, nine members; economics, five members; the public, ten members. There is a research staff of seven members.

The central committee is financed by funds appropriated by eastern foundations. The survey work in the districts is financed by local funds.

The work of the committee was outlined under seventeen studies as follows:

Preliminary survey of data showing the incidence of disease and disability requiring medical services and of generally existing facilities for dealing with them.

*1. The diseases and conditions responsible for human disability and inefficiency.

2. The prevalence of certain disorders which appear to be among the most serious causes of disability and inefficiency.

3. The proportion of persons, both adults and school children, not disabled, who are in need of medical service.

*4. Existing facilities for the treatment and prevention of disease and defectiveness—a statistical study.

*5. Surveys of the medical services of a large city, of a small city, and of a rural community.

Studies on the cost to the family of medical services and the return accruing to the physician and other agents furnishing such services.

*6. The cost of sickness, during a 12 months' period, among various representative population groups, including the incidence of sickness.

7. The influence of specialization on the cost of medical service.

8. The cost of adequate medical service for a family during a 12 months' period.

*9. Capital investment and income in private practice.

*10. Capital investment in hospitals and clinics.

Analysis of specially organized facilities for medical care now serving particular groups of the population.

*11. Organized medical service in industry and in universities.

*12. Pay clinics and group clinics.

13. Recent developments in services rendered to persons not indigent by state, municipal, and county hospitals.

14. Visiting nurse societies.

15. School health service.

16. The extent of private medical service on a yearly basis.

17. Existing types of health insurance in the United States.

(*Studies in this list, preceded by star (*) are to be given priority.)

Up to date the work has been devoted especially to Study No. 6, that is, a study of the cost of sickness, during a 12 months' period among various representative population groups including the incidence of sickness. In Colorado the locally organized survey has been centered entirely on this one study.

The classifications for Study No. 6 are as follows:

A1. Lower economic group in cities over 100,000.
A2. Middle economic group in cities over 100.000.
A3. Upper economic group in cities over 100.000.

B1. Lower economic group in cities 25,000 to 100,000.
B2. Middle economic group in cities 25,000 to 100,000.
B3. Upper economic group in cities 25,000 to 100,000.

C1. Lower economic group in cities 5,000 to 25,000.
C2. Middle economic group in cities 5,000 to 25,000.
C3. Upper economic group in cities 5,000 to 25,000.

D1. Industrial towns under 5,000 with hospital facilities.
D2. Industrial towns under 5,000 without hospital facilities.
D3. Agricultural towns under 5,000 with hospital facilities.
D4. Agricultural towns under 5,000 without hospital facilities.

E1. Good agricultural area with hospital facilities.
E2. Good agricultural area without hospital facilities.
E3. Poor agricultural area with hospital facilities.
E4. Poor agricultural area without hospital facilities.

The committee now has in progress 10,370 study schedules in the United States. They are distributed as follows:

City or State	No. of Schedules
Washington	900
California	800
Colorado	440
Kansas	625
Minnesota	900
Michigan	575
Ohio	1,400
Indiana	900
Georgia	850
West Virginia	525
Virginia	830
Massachusetts	325
New York City	300
Chicago	500
Philadelphia	300
West Haven	100
Washington, D. C.	100
Total	10,370

The first report from the committee will be off the press this month (September) under the title "Two Years' Progress".

In Colorado, studies are now in progress in the following localities.

Denver: A study of 200 families representing the upper (A3), middle (A2), and lower (A1), economic groups. The work is under the supervision of the Visiting Nurse Association, and has been financed by the Denver Community Chest and by the School of Medicine and Hospitals.

The visiting Nurses have met with very little opposition in securing the desired data. The funds for this work are now exhausted and it will be necessary to secure about $400.00 before the studies can be completed.

Pueblo: A study of 100 families of the upper economic group (B3) is being made by Miss Kathleen Maxey and Mrs. Louise Mayhall, public health nurses from the Department of Health.

Boulder: A study of 40 families in the middle economic group (C2) is in progress under the supervision of Miss Hester Rohwer, city nurse. Worker reports that she is having no difficulty in securing data.

La Junta: A group of 50 families (D3) is being studied by Miss Mabel Ruber, county nurse.

Rocky Ford: Mrs. Katherine Ashbaugh, county nurse, is making a study of 50 families (D3). Worker reports that she is securing excellent cooperation.

The studies in Colorado are not as extensive nor as widely distributed as they should be. There should be studies in progress in mining sections, in remote mountainous districts and in dry farming localities. Up to date it has been impossible to find either the personnel or the funds for studies in these localities.

Your committee believes that the data obtained from these studies will be of inestimable value to both physicians and laymen, and that it will greatly aid in clearing the atmosphere on those questions which are being so generally discussed from a purely empirical standpoint in professional and lay journals. The layman is inclined to overlook such items as hospital, medicines and appliances and nursing costs, and to consider only the physicians' fees in connection with the cost of medical care. The public in general also overlooks the vast amount of free work done by the medical profession.

Your Committee wishes to urge upon the physicians of Colorado that they assist in every way possible the work of the Committee on the Cost of Medical Care, and that they give all data asked for as promptly and as accurately as possible.

Respectfully submitted,
MAURICE A. REES, Chairman,
JAMES J. WARING,
FRANK R. SPENCER,
P. O. HANFORD,
GEORGE H. CURFMAN.

President Childs: "The next is the report of the Committee on Industrial Commission Fees."

REPORT OF THE COMMITTEE ON INDUSTRIAL COMMISSION FEES

Your Committee on Industrial Commission Fees, to whom was intrusted the matter of a possible revision of the Colorado Workmen's Compensation fee list, as per Section 51 of the Workmen's Compensation Act of Colorado, respectfully submit the following report for your consideration:

Your committee have carefully considered this matter in all its ramifications. It has met with representatives of the various accident and health insurance companies. Opinions have also been obtained from prominent members of the medical profession. Mr. Thomas Annear, Chairman of the State Industrial Commission of Colorado, also very kindly granted your committee an interview and discussed this matter at some length.

Mr. Annear informed your committee that the state legislature at its last session, although recommending no changes in the fee list, advised certain changes which improve the situation by

increasing the sum total allowed for medical services in a given case from $200 to $500 in amount, and in length of time covering disability from two (2) months to four (4) months duration. He also informed your committee that in deserving cases, requiring more time or greater expense for medical services, the commission would give such cases special consideration.

The representatives of the insurance companies were free to admit that the fee list at present in operation is inadequate, and that in justice to the medical profession certain fees should be revised upward.

However, inasmuch as the present fee list seems fairly equable, and believing that considerable confusion would probably result if changes were made in the fee list by reason of the increased rates to the various industries necessitated by such changes, they (the insurance companies) believe that it would be advisable to postpone for the present any action looking toward a revision of the fee schedule.

Members of the medical profession who were interviewed were of the opinion that the "Flat Fee" list would bear revision with an average increase of 25 per cent throughout. In consideration of the fact, however, that there is very little of certain classes of surgical work mentioned in this list, and that certain other classes require only an ordinary amount of attention on the part of the surgeon, it leaves in the minority those cases which may require considerable attention covering a prolonged period of time in which the fees seem to be low.

However, it is the opinion of the medical profession that the fee list is fairly satisfactory in its entirety, and if any attempt should be made to revise the present schedule, that the situation might not be improved and might be rendered distinctly worse.

Your committee, therefore, recommend that action looking toward a revision of the fee schedule of the Workmen's Compensation Act be postponed to some future time.

Respectfully submitted,
FRANK W. KENNEY, Chairman.
FRANK B. STEPHENSON,
T. E. BEYER,

President Childs: "The next is the report of the Committee on Selection of an Executive Secretary."

Dr. Epler: "May I ask a question? To what committee is the report of the Committee on Industrial Commission Fees referred, and who is the Chairman of the Committee?"

President Childs: "All of these, as I stated before, will be referred to the Committee on Reports of Committees."

Dr. Epler: "Who is the Chairman?"

Dr. Stephenson: "Dr. C. H. Graves."

President Childs: "The next is the report of the Committee on Selection of an Executive Secretary."

REPORT OF COMMITTEE ON EXECUTIVE SECRETARY

President Childs, in accordance with his desire expressed at the last annual session, appointed the following members of the Society to serve with the executive officers as a committee to select an executive secretary.

President-elect, W. F. Senger, Pueblo; H. T. Low, Pueblo; W. A. Kickland, Ft. Collins; George H. Curfman, Salida, and W. H. Halley, W. A. Sedwick, J. J. Waring, W. A. Jayne and C. F. Kemper of Denver.

At the final meeting, at which a selection was made, Drs. E. D. Downing of Woodmen and F. R. Spencer of Boulder were at hand and were asked to participate in our meeting. Numerous meetings and conferences of the Denver men were held at times when it was not feasible to gather the entire membership together, but there were held two meetings of the full committee, the last on April 20 and one at a previous date. The only two who were unable to attend any of the meetings were Dr. Jayne and Dr. Kickland.

At the last meeting on April 20, 1929, the committee considered six applicants who had been asked to present themselves in person for interview so that all the members could size them up personally in addition to having the written information which had been obtained. The remaining seven or eight applicants had been weeded out as unsatisfactory for one obvious reason or another. Following this long drawn out session, an unanimous selection was made, the applicants having been voted on by the method of balloting for first, second and third choices. Those present at this final meeting were Doctors Halley, Senger, Downing, Sedwick, Kemper, Waring, Spencer, Curfman, Childs, Kemper and Stephenson.

We believe that our work was well done and I am sure that most of the men on the committee are fully convinced of the desirability of the new program and feel that we have selected a man of good promise. We urge that you give him all the encouragement possible and it is our belief that the financial end of this proposition will easily be taken care of for a long time without any additional burden upon the Society.

It is my desire to impress on the House of Delegates that the work of obtaining these applications, of considering them from time to time, of running down the numerous references given, and of corresponding with other state societies, became a burden of considerable moment to the Committee, which, however, was cheerfully and enthusiastically borne.

It has been impressed upon the new Secretary that his duties are to be entirely non-political and that he is hired to serve the members of the Society at large, individually and collectively.

F. B. STEPHENSON, Secretary.
For the Committee.

President Childs: "This report will be referred to the Committee on Reports of Committees.

"The Committee on Finance will report, and Dr. Bortree will report for the late Dr. Jayne."

REPORT OF THE COMMITTEE ON FINANCE

Your Committee on Finance appointed at the last Annual Meeting begs leave to submit the following report.

During the year your Committee held several meetings considering the question of investments.

One Liberty Bond became due and it was necessary to re-invest this $1,000, which was done by purchases of U. S. 4th Liberty Loan Bonds, 4¼%, for $1,000.

Pursuant to the recommendation of the House of Delegates of the last meeting, $3,000 was withdrawn from the Savings Account with which was purchased U. S. Certificates of Indebtedness of the Series of 1920 to the sum of $3,000.

Our total bond holdings at the present time amount to $7,500.

During the ensuing year, it will be necessary to re-invest the $3,000 at present in the U. S.

Certificates of Indebtedness, which will become due and payable Sept. 15, 1929.

Respectfully submitted,
C. F. HEGNER,
L. W. BORTREE,
For the Committee.

Dr. Bortree (continuing): "This report should be the report of Dr. Jayne, inasmuch as he did ninety-five per cent of the work; Dr. Hegner and I merely co-operated."

President Childs: "The report will be referred to the Committee on Reports of Committees.

"Is there any unfinished business? Mr. Sethman has a few matters to present."

Mr. Sethman: "We have before the House of Delegates an application for a new County Society, which I believe is the most important thing that has come to my office for the attention of this Society. I will read it."

PETITION

For a Charter as a Constituent Society of the Colorado State Medical Society.

August 16, 1929.

To the House of Delegates, Colorado State Medical Society:

We, the undersigned, regularly licensed practicing physicians, residents of Crowley County, Colorado, respectfully petition the House of Delegates of the Colorado State Medical Society for a charter as a constituent county medical society of the Colorado State Medical Society.

We met and organized as a County Medical Society at Crowley, Colorado, on July 9, 1929. We adopted as the name of our Society the following: THE CROWLEY COUNTY MEDICAL SOCIETY, and adopted and individually signed the attached constitution and by-laws, which we include as a part of this petition.

We have elected as officers for the first year of our existence the following:

President, S. A. Bryan;
Vice President, E. O. McCleary;
Secretary, J. A. Hipp;
Treasurer, A. W. Graham.

We hereby pledge ourselves, individually and collectively, that should our Society be granted a charter, we will faithfully and diligently abide by the letter and spirit of our constitution and by-laws, the constitution and by-laws of the Colorado State Medical Society, and the principles of organization and ethics of the American Medical Association.

(Signed) S. A. BRYAN, M. D.,
E. O. McCLEARY, M. D.,
J. A. HIPP, M. D.,
A. W. GRAHAM, M. D.,
T. B. MYERS, M. D.,
G. M. BAKER, M. D.,
J. E. JEFFERY, M. D.

Mr. Sethman (Continuing): "I will say for the benefit of the House that I have had considerable correspondence in regard to this application, with the Councillor for that district, which the Committee will probably want to read.

"Then, I have also for your consideration a notice from the United States Pharmacopoeial Convention, inviting the Colorado State Medical Society to elect three delegates to the regular decennial convention for the revision of the United States Pharmacopoeia."

President Childs: "This application for charter, according to the by-laws, has to be investigated by the Credentials Committee. That will be referred to the Credentials Committee.

"The communication from the Pharmacopoeial Convention will be referred to the Committee on Miscellaneous Business."

Dr. Nossaman: "Mr. Chairman, one thing that I wish to present: The Councillor from our district has been compelled to move away from the state."

President Childs: "That will be referred to the Nominating Committee; and I would also call their attention to the fact that Dr. Lingenfelter's term expires in 1929, as Councillor from Denver.

"If there is no other business we will stand adjourned until eight o'clock tomorrow morning."

SECOND MEETING OF THE HOUSE OF DELEGATES

8 A. M., Tuesday, Sept. 3, 1929

The meeting was called to order by Dr. Childs, President, at 8:00 a. m., Tuesday, Sept. 3, 1929. Dr. H. G. Garwood, alternate, was seated by vote of the House in the absence of Dr. H. R. McKeen, delegate from Denver.

President Childs: "There being a quorum present, the House will please come to order. The first order of business is the roll call."

The roll was called and the President announced thirty-three delegates present.

It was moved, seconded and carried that the reading of the minutes of the previous meeting be dispensed with.

President Childs: "The next is the report of any Committee, Standing or Special, which was not submitted last night. The Auditing Committee has not yet submitted a report."

Dr. Reed: "We will have a report tomorrow."

President Childs: "Is there any unfinished business left over from last night? You heard the report of Dr. Halley, Chairman of the Committee on Amendments to the By-Laws, made necessary by the creation of the new office of Executive Secretary. That, according to the by-laws of the Society, can now be brought up, and the Chair is ready to receive a motion, if the House so desires."

It was regularly moved and seconded that the Amendments to the By-Laws as submitted by the Special Committee be adopted.

President Childs: "You have heard the motion, duly seconded, that the Amendments to the By-Laws of this Society, as recommended by the Committee, be adopted. Is there any discussion? If not, all those in favor of adopting the changes in the By-Laws as read by the Chairman of the Committee last evening, please say 'Aye;' contrary-minded 'No.' There being a quorum sufficient to adopt the change, and it being unanimously carried, the amendments are declared adopted by the Society."

Dr. Garwood: "Mr. President, since it is made a part of the By-Laws of the State Society, that amendment should lay over one day."

President Childs: "That day was yesterday. I said it would be acted on at this morning's session.

"Dr. Beyer, has your Committee, the Committee on Miscellaneous Business, anything to report?"

Dr. Beyer: "The only report we have to make, Mr. President, is that the Colorado State Medical Society has not been sending delegates to the National Pharmacopoeial Convention, and the Committee recommends this year that the same plan be followed."

President Childs: "Doctors, you have heard the report with reference to the matter brought up last night, the sending of three members of

this Society as delegates to the National Pharmacopoeial Convention, to be held May 13. The report of the Committee is that in their judgment no delegates be sent. What will you do with this report?"

Dr. Yegge: "I move its adoption."

The motion was duly seconded.

President Childs: "It has been moved and seconded that the report of the Committee on Miscellaneous Business with reference to delegates to the Pharmacopoeial Convention, that no action should be taken by this Society in sending three delegates, be adopted. All those in favor of this motion will please manifest by saying 'Aye,' contrary 'No.' Carried.

"While we are waiting for a report from the Credentials Committee on the charter for which Crowley County has petitioned the Society, we will ask Mr. Sethman to speak on two or three matters of interest to the Society."

Mr. Sethman: "I have some matters that have come to the office in correspondence, that as a matter of courtesy should be brought before the House. A great mass of material has been sent to me by the National Representation Citizens Joint Committee for the District of Columbia asking us to adopt a resolution calling upon Congress to submit a constitutional amendment giving franchise to the citizens of the District of Columbia. I will read the resolution that they ask us to adopt."

The resolution was read.

President Childs: "A resolution like this should be referred to the Committee on Miscellaneous Business."

It was moved, seconded and carried that the resolution be so referred.

President Childs: "Is there any new or unfinished business to be brought up?"

Dr. Moleen: "Mr. President, before you close the session, I would like to know just where the Committee on Publications stands with reference to the election of an Editor, and the acceptance of the resignation of the present incumbent. I feel quite certain about my own position, because some years ago I was elected to the editorship, and since that time I have been a member of the Publications Committee. It has devolved upon that Committee to retire any Editor or select a new one; but in looking over the by-laws last night I found no authority for that Committee to so act, and I assume the power of accepting his resignation is in the House of Delegates. I believe it would be wise, in the present instance, for the Committee to be empowered to accept the resignation of Dr. Kemper, if he insists upon it, and to select someone to take his place, with the understanding, I think, however, which is always true, that the present incumbent should remain until his successor has been duly accepted by the Committee. I believe it would be wise that this House of Delegates give the power to the Publications Committee to so function."

Dr. Crouch: "I move, Mr. President, that the Publications Committee be so authorized."

The motion was duly seconded.

President Childs: "You have heard the motion, duly seconded, that the Publications Committee be authorized by the House of Delegates to employ an Editor. Is that the way you want to put it, Dr. Moleen?"

Dr. Moleen: "I believe it should be: That the Committee should be given the power to accept the resignation of the present Editor."

Dr. Crouch: "As I understand it, he is the scientific Editor, and the Executive Secretary becomes the Managing Editor."

President Childs: "Yes."

President Childs: "The question before the House is that the House of Delegates authorize the Publications Committee to employ an Editor for the Journal for this year. Do you want to put that in, 'for this year'?"

Dr. Crouch: "Yes; and also incorporate in that motion that they may accept the resignation of the present Editor."

President Childs: "Yes. All those in favor of this motion please manifest by saying 'Aye,' contrary-minded, 'No.' Carried.

"There are several delegates present now who were not present when we started the meeting this morning. Has any one of them any reports to make, or anything to come under the head of new business, to submit? If there is no further business to come before this Society, we will stand adjourned until eight o'clock tomorrow morning."

THIRD MEETING OF THE HOUSE OF OF DELEGATES

8 A. M., Wednesday, Sept. 4, 1929

President William Senger: "The meeting will please come to order, and we will have the calling of the roll.

The Secretary called the roll.

President Senger: "There being twenty-six delegates present, which constitutes more than a quorum, we will proceed with business.

"The first order of business will be the reading of the minutes of the last meeting."

It was moved, seconded and carried that the reading of the minutes be dispensed with.

President Senger: "The next in order is the report of the Committee on Auditing, Dr. Reed, Chairman."

REPORT OF THE COMMITTEE ON AUDITING

To the President and Members of the House of Delegates:

Your Committee met with the Treasurer, inspected his accounts, and find them to be correct.

Your Committee recommends, in view of the increasing financial responsibility placed upon the officers, that if possible the audits in the future be conducted by a certified public accountant.

Respectfully submitted,
O. P. SHIPPEY,
WALTER K. REED, Chairman.

President Senger: "You have heard the report of this Committee. What is your wish?"

It was moved, seconded and carried that the report be adopted.

President Senger: "The next in order is the report of the Appropriations Committee; Dr. Hardesty."

REPORT OF THE COMMITTEE ON APPROPRIATIONS

To the House of Delegates of the Colorado State Medical Society:

Your Committee on Appropriations begs leave to report that the following represents the probable revenue to the general fund for the remaining four months of 1929:

Cash on hand	$4,135.98
Revolving fund	200.00
Probable dues	50.00
Probable Journal receipts	1,000.00
Probable exhibit space receipts	275.00
Total available for appropriation	$5,660.98

We recommend that appropriations for the four-month period ending Dec. 31, 1929, be made as follows:

Executive Office:		
Salaries	$1,200.00	
Overhead	200.00	
Travel	500.00	
Stationery, etc.	25.00	
Miscellaneous	25.00	
		$1,950.00
Colorado Medicine:		
Salaries	$ 475.00	
Printing and mailing	1,800.00	
Miscellaneous	50.00	
		2,325.00
Annual Meeting:		
Overhead	$ 350.00	
Guests	600.00	
Promotion	150.00	
Miscellaneous	200.00	
		1,300.00
Library		50.00
Treasurer's office		40.00
Permanent equipment		100.00
Total appropriations		$5,765.00

Your Committee recommends that the Executive Committee and appropriate officers be instructed to charge so much of the Executive Secretary's salary for these four months as they feel is necessary against the special fund, so that the general fund shall not be exhausted before the increase in dues goes into effect. We recommend that the officers be empowered to do likewise with such other items of the appropriation as may be necessary and appropriate as expenditures from the special fund.

Your Committee believes that the $1,000 item for permanent equipment budgeted by the Executive Secretary between this four-month period and the ensuing fiscal year is a necessary expenditure, but we believe that this expenditure should be budgeted over a period of years, rather than to be charged against the already heavily burdened general fund at the present time.

We therefore recommend that $100.00 be budgeted for permanent equipment from the general fund for this four-month period, and $100.00 for 1930, and that the officers be instructed to borrow from the special fund such additional sums, within the $1,000.00 limit for such expenditures, as may be necessary. This money borrowed or transferred can then be repaid to the special fund by the general fund at the rate of $100.00 per year.

Your Committee reports further and recommends that the following be adopted as the budget for the fiscal and calendar year of 1930:

Estimated Revenue:	Total	Gen'l Fund	Colo. Med.	Spec'l Fund
1,050 dues at $10.00	$10,500	$7,350	$2,100	$1,050
Adv. and subs.	5,000		5,000	
Space rentals	500	500		
Interest	350	350		
Total	$16,350	$8,200	$7,100	$1,050

Appropriations: Chargeable to	Total	Gen'l Fund	Colo. Med.	Spec'l Fund
Executive Office:				
Salary	$ 3,600	$3,000		$ 600
Overhead	600	600		
Travel	800	800		
Stnry, mlg., supplies	400	200		200
Miscellaneous	300	300		
	$ 5,700	$4,900		$ 800
Colorado Medicine:				
Salaries	$ 1,980		$1,980	
Printing and mailing	5,700		5,700	
Promotion	50		50	
Miscellaneous	100		100	
	$ 7,830		$7,830	
Annual Meeting:				
Overhead	$ 450	$ 450		
Guests	250	250		
Promotion	100	100		
Miscellaneous	100	100		
	$ 900	$ 900		
Library	500	500		
Committee on Pub. Pol.	200			200
Treasurer's office	50	50		
Permanent equipment	100	100		
Grand totals	$15,280	$6,450	$7,830	$1,000

Gain or loss to funds by this budget will be:				
Estimated revenue	$16,350	$8,200	$7,100	$1,050
Appropriations	15,280	6,450	7,830	1,000
	$ 1,070	$1,750	$ 730	$ 50
	(All Funds) (Gain)	(Gen. Fd.) (Gain)	(Col. Med.) (Loss)	(Spl. Fund) (Gain)

Your Committee further recommends that this House of Delegates go on record as demanding a strict adherence to the constitution and by-laws regarding the operation of our Society finances on a fiscal year corresponding to the calendar year.

The House of Delegates voted at the 1928 Annual Session to place the Executive Secretary under $10,000 fidelity bond, just as has always been required of the Treasurer. This has been done. But our Executive Secretary has called to the attention of this Committee the fact that receipts in 1930 will approximate $16,350, and he recommends that these bonds be increased to $15,000. Your Committee believes that with the safeguards already surrounding the Treasurer, such as that requiring three signatures on our voucher-checks, no increase in his bond is necessary, but we recommend that the Executive Secretary's bond be increased to $15,000.

Respectfully submitted,
COMMITTEE ON APPROPRIATIONS,
C. F. KEMPER, Chairman,
W. B. HARDESTY,
GEO. H. CURFMAN.

President Senger: "You have heard the report of the Appropriations Committee. What is your desire?"

Dr. Garwood: "There is one word in that report that I think should be changed. He uses the word 'can,' and I think the word should be 'shall.' I think the word 'can' should be stricken out, and the word 'shall' substituted. I make that as a motion."

Dr. Bortree: "'Shall be repaid'?"

Dr. Garwood: "Yes, 'shall be.' 'Can' is not obligatory on anybody. I make that as a motion, that the word 'can' be stricken out, and the word 'shall' substituted."

The motion was regularly seconded.

President Senger: "All those in favor of the

motion signify by saying 'Aye,' contrary 'No.' Carried. Aside from this correction, what is your desire?"

Dr. Garwood: "I move that the report be adopted."

The motion was regularly seconded, put to a vote, and carried.

Dr. Stephenson: "I do not think we need that $15,000 bond."

President Senger: "It only costs $10 a year, anyway. We will next have the report of the Reference Committee on Reports of Officers. Has anyone that report?"

Dr. Stephenson: "I have Dr. Moleen's report, Mr. President."

REPORT OF THE REFERENCE COMMITTEE ON REPORTS OF OFFICERS

Report of President:

This Committee approves the sentiment of the address of the President, and feels that the increase in the appropriation from $150 to $500 to the Colorado Medical Library be left to the judgment of the Committee on Appropriations.

The plan of Journal service, as referred to under "3," is not clear in meaning and should be clarified.

Report of Secretary:

Your Committee is of the opinion that the present Secretary, Dr. F. B. Stephenson, should be retained in office in order to guide the Executive Secretary, as no one is more familiar with the needs of, the aims of, the present program under a full-time Secretary.

Report of the Council:

The Committee recommends the adoption of the report of the Council.

Report of the Delegates to the A. M. A.:

The Committee recommends the report of the Delegates be accepted and the Delegates be commended for the excellence of their record in the National House.

Report of the Executive Secretary:

Your Committee recommends the acceptance of the report of the Executive Secretary, and approves the energy and enthusiasm he manifests in his new labors.

Respectfully submitted.
GEO. A. MOLEEN,
FREDERICK S. HELLER,
P. J. McHUGH, Chairman.

President Senger: "You have heard the report of the Committee on Reports of Officers. What is your desire?"

Dr. Curfman: "I move its adoption."

Dr. Garwood: "I second the motion."

President Senger: "Is there any discussion? If not, all those in favor of the motion signify by saying 'Aye,' opposed 'No.' Carried.

"The report of the Committee on Miscellaneous Business is next; Dr. Low, Chairman."

Dr. Low: "Dr. Beyer has all the material, and I believe the Committee has reported in full."

President Senger: "All right; thank you, Doctor. We will next have the report of the Committee on Reports of Committees, by Dr. Graves."

REPORT OF THE REFERENCE COMMITTEE ON REPORTS OF COMMITTEES

Your Committee on Reports of Committees begs leave to report as follows:

Public Policy Committee: Commend them upon their untiring efforts and their success in dealing with legislative matters. Their recommendation for a special meeting of the House of Delegates should be considered by the House.

Publications Committee: Accepted.

Medical Education Committee: Accepted.

Committee on Social Medicine: Accepted, and the support of the Society urged in furthering their aims.

Committee on Medical Literature: Accepted.

Committee on Hospitals: Accepted.

Committee on Military Affairs: Accepted, and the cooperation of the Society urged in furthering their recommendations.

Committee on Periodic Health Examinations: Accepted and their work should be continued.

Committee on Local Arrangements: Accepted. We believe that this Committee should be given a rising vote of thanks by this House for its indefatigable work which has made this Annual Session such a success.

Committee on Cooperation with State Pharmacal Association: Accepted, and the Committee should be continued.

Committee on Cost of Medical Care: Accepted, and the Committee should be continued.

Committee on Selection of an Executive Secretary: Accepted, and the committee should be discontinued.

Committee on Finance: Accepted, and the Committee should be continued.

Committee on Mental Hygiene: Accepted. We recommend that action be taken by the House of Delegates as requested by that Committee.

Committee on Industrial Commission Fees: We refer this report directly to the House of Delegates for discussion and disposition, inasmuch as your Committee feels that the report does not represent the feeling of a majority of the members.

Committee on Scientific Program: Accepted, and the Committee should be complimented upon the arrangement of so excellent a program.

WALTER K. REED,
C. H. GRAVES, Chairman.

It was moved, seconded and carried that the report be adopted.

Dr. Stephenson: "Mr. President, I would like to ask those present for a vote of thanks to Dr. C. E. Harris, Chairman of the Committee on Periodic Health Examinations. This has been a most active Committee, and Dr. Harris is the first one who has ever done anything with that Committee. He has made strenuous efforts to put the thing over, and he and the members of his Committee have visited a great many county societies, and have made special addresses before them. I would like to have it a matter of record that we give a vote of approval to Dr. Harris for his work."

Dr. Garwood: "I suggest that we give him a rising vote."

President Senger: "All those in favor of giving Dr. Harris a rising vote of thanks for his efforts on this Committee will stand—unanimously carried."

Dr. Garwood: "I move that we give a rising vote of thanks to the Committee on Local Arrangements."

Dr. Stephenson: "I second the motion."

The motion was unanimously carried.

President Senger: "What do you wish to do in regard to the recommendation of the Committee on Industrial Commission Fees?"

Dr. Low: "Mr. President, as I understand it now, you have adopted the report of this Reference Committee, and this matter of the Industrial Commission fees is now before the House of Delegates."

President Senger: "Yes."

Dr. Low: "It seems to me that ever since this Compensation Bill has been in effect there has been a good deal of trouble amongst the doctors of this State. Whenever the question comes up regarding the advocacy of a fee, the insurance people come back at us and say that this fee bill was made, sponsored and accepted by a committee of the Colorado State Medical Society, and if you have anything to say about it, take it up and settle it amongst yourselves first. The report of the original Committee definitely states that they admit this fee bill is not adequate in all respects. They admit that themselves, and yet they say that the time is not ripe for any change. But, gentlemen, if we accept this Committee's report we are tying our hands for all time to come. We will not be able to do anything, because they will again throw it up to us that we have accepted the report. I think this should be discussed thoroughly in this House of Delegates. It has been up every year since I have been in the House of Delegates, and we have sidetracked the issue. I think a special committee should be appointed to go into this thing and see if it is not possible at the next meeting to bring an adequate fee bill and present it before this House of Delegates."

Dr. Garwood: "I think the gentleman from Pueblo is right about this proposition. I think I was a member of the House of Representatives when this Industrial Commission Bill was adopted by the State Legislature. I suppose that is something I will have to account for some time, but I cannot help it. I think a special committee should be appointed to handle this thing, because I do not believe we should put ourselves in a position to be criticised by the insurance companies or the Industrial Commission or the Compensation Insurance Fund, or anybody else, on this proposition. I think it should be in the hands of a special committee to investigate it, and submit a report at the next meeting of the Colorado State Medical Society. This Society should not go off half-cocked on this proposition, and I therefore am in favor of what Dr. Low from Pueblo has said. I move that a special committee be appointed to investigate this matter and report at the next meeting, or report tomorrow morning, if you desire it. I do not think it can be investigated and reported on tomorrow morning."

Dr. Low: "It has been investigated."

The motion was regularly seconded.

Dr. Curfman: "With the consent of the mover and the second, I would like to amend it so as to include our President as Chairman of that Committee. We are fortunate in having him at the head of our Society this year, and I think the time is ripe when we have him in office."

Dr. Garwood: "The amendment as suggested by Dr. Curfman will be acceptable to me, if it is put in such form as to get an adequate idea of what you mean. The proposition is—you said, 'report at the next meeting,' and there wasn't any mention made as to whether you wanted it tomorrow morning, or not."

Dr. Low: "Mr. President, this has been duly investigated, but the Committee's report has not been accepted by the Committee on Reports of Committees. Therefore, that Committee is practically discharged. What I think we ought to do is to see if we cannot get an adequate basis, and that cannot be done by tomorrow morning. However, I think that Committee can get started, and report tomorrow morning and get some expression from the House of Delegates upon what they think about the matter."

President Senger: "Is there any further discussion?"

Dr. Garwood: "Mr. President, I would be willing to accept the amendment that this Committee be appointed, and strike out the rest in regard to reporting at the next meeting, but to report tomorrow morning—if that is acceptable to you."

Dr. Curfman: "The purport of my motion was to include the President."

Dr. Garwood: "Make a preliminary report tomorrow morning. Word it this way, that a special committee of five members, one of whom shall be the President of the State Society, be appointed by the President to investigate the matter of the fee bill of the State Compensation Insurance Fund, and make a preliminary report to the meeting tomorrow morning."

Dr. Curfman: "I second the motion."

Dr. Low: "I would like to amend that to read, 'With the end in view of getting an adequate fee,' if that is acceptable to this House of Delegates?"

Dr. Garwood: "I do not accept that amendment, because it is perfectly evident what the Committee is for. They know what it is."

President Senger: "Is there any further discussion? All those in favor of the motion signify by saying 'Aye,' opposed 'No.' The motion is carried. I will appoint on that Committee Dr. Garwood, Dr. Low, Dr. Espey, Dr. Halley, Dr. Epler, and myself.

"I believe there is nothing else to be taken up in regard to the report of the Committee on Reports of Committees, so that the next order of business will be the report of the Nominating Committee, Dr. Curfman, Chairman."

The report of the Nominating Committee was read by Dr. Curfman, and was referred back to the Committee for correction, inasmuch as the Committee had neglected to nominate a candidate for the three-year term as member of the Committee on Publication.

The Committee retired and returned to deliver the following report:

REPORT OF THE NOMINATING COMMITTEE

To the House of Delegates of the Colorado State Medical Society:

We, the undersigned Nominating Committee, beg leave to submit the following nominations:

For President: W. A. Kickland of Fort Collins.

For First Vice President: J. B. Crouch of Colorado Springs.

For Second Vice President: Burgett Woodcock of Greeley.

For Third Vice President: Chas. E. Condon of Leadville.

For Fourth Vice President: E. H. Munro of Grand Junction.

For Secretary: F. B. Stephenson of Denver.

For Treasurer: L. W. Bortree of Colorado Springs.

For Delegate to the American Medical Association: John R. Espey of Trinidad.

For Alternate to the American Medical Association: James J. Waring of Denver.

For Councillor of the Second District: G. P. Lingenfelter of Denver.

For Councillor of the Fifth District: A. J. Nossaman of Pagosa Springs.

To succeed C. S. Elder as member of Committee on Publications: W. H. Crisp of Denver.

Place of meeting for the Sixtieth Annual Session, 1930, Pueblo, Colo.

W. B. HARDESTY,
G. M. NOONAN,
H. S. FINNEY,
HAROLD T. LOW,
GEORGE H. CURFMAN, Chairman.

Dr. Curfman (Continuing): "I might state that Dr. Stephenson would rather be continued in office for a year only, to help out the new Executive Secretary, than be nominated as Secretary for the full three years."

President Senger: "I think that is entirely out of order. Dr. Stephenson has a right to resign at any time. If he is elected, he has a right to resign at the end of the year; and that is understood. Are there any nominations from the floor?"

Dr. Rogers: "Mr. President, I move that the nominations be closed."

The motion was seconded.

Dr. Bortree: "I rise to a point of order. If this motion to close the nominations is adopted, it is not effective, because nominations can be made from the floor up to the time of the taking of the vote tomorrow."

It was then moved, seconded and carried that the report of the Nominating Committee be accepted.

President Senger: "Is there any new business to come before the House? Remember, this meeting is your last opportunity to introduce new business. I believe Mr. Sethman has something to present."

Mr. Sethman: "We were endeavoring at some of the meetings of the Executive Committee, that is, Dr. Stephenson, Dr. Bortree, and Dr. Childs, President, to work out something that might be approved by the House of Delegates as an automobile emblem, not supplanting, but in addition to the American Medical Association emblem."

Here Mr. Sethman described in detail, and displayed drawings of a proposed automobile emblem and read correspondence pertaining thereto from the American Medical Association.

Dr. Bortree: "I want to say that I have listened to the emblem plan, but personally I would not care to use one. I feel that a large proportion of the membership would feel as I do. I personally have felt that such a thing would be undesirable, and I still feel the same way."

President Senger: "Does anyone care to make a motion?"

Dr. Stephenson: "I move that no action be taken on the matter by the House at the present session."

The motion was duly seconded, put and carried.

President Senger: "Is there any further business at this time? All new business must be brought up today. If there is nothing further, we will stand adjourned until 8:00 a. m. tomorrow."

FOURTH MEETING OF THE HOUSE OF DELEGATES

8 A. M., Thursday, Sept. 5, 1929

President Senger: "The meeting will please come to order, and the Secretary will call the roll."

The roll was then called.

Mr. Sethman: "Dr. Bouslog is absent, and it has been called to my attention that his Alternate, Dr. Henry Wilcox, is here. It will take a vote of the House to seat Dr. Wilcox."

A motion was regularly made, seconded and carried that Dr. Wilcox be seated.

President Senger: "There are twenty-two delegates present, constituting a quorum. The first order of business is the reading of minutes of the previous session."

It was moved, seconded and carried that the reading of the minutes be dispensed with.

President Senger: "The next order of business is the election of officers. Are there any nominations from the floor?" (No response.)

The report of the Nominating Committee was then reread by the Executive Secretary.

President Senger: "You have heard the report of the Committee. What is your desire?"

Dr. Gillette: "I move that the rules be temporarily suspended and the nominations be closed, and the members elected as read."

Dr. Garwood: "I second the motion."

President Senger: "Is there any discussion If not, all those in favor of the motion signify by saying 'Aye,' opposed 'No.' Carried.

"Are there any reports of Committees. They must be reported now. How about the report of the Credentials Committee?"

Dr. Stephenson: "Mr. President, I have here the application for a charter submitted by seven men organized under the title of the Crowley County Medical Society. Their application is signed, and we have quite a lot of correspondence regarding it. In the Crowley County Society there are men residing in Otero county, but they are so situated geographically that it is hard for them to get to the Otero county meetings, so Mr. Sethman corresponded with Otero county, and we have a letter from the Secretary of that society saying they realize the situation, and believe that the men who do not belong to their society are justified in going with the other society and transferring their membership there. There seem to be no legal objections to the formation of this society."

Dr. Kemper: "I move that the application of the Crowley county physicians be granted."

Dr. Stephenson: "Will Mr. Sethman read the provisions of the by-laws in regard to the granting of charters?"

Following discussion of the by-laws provisions and the personnel of the proposed society, Dr. Kemper's motion was amended to read: "That the charter be granted to the Crowley County Medical Society at the discretion of the executive officers of the Society, after submission of the names of the proposed charter members to the American Medical Association to obtain any information about them obtainable from the Biographic Department, and after revision of the application, if necessary, to the satisfaction of the executive officers."

The motion was duly seconded.

President Senger: "Any further discussion? If not, all those in favor signify by saying 'Aye,' contrary 'No.' Carried.

"Are there any other reports of Committees?"

Dr. Low: "The report of the Special Committee on Compensation. We have that report."

REPORT OF THE SPECIAL COMMITTEE APPOINTED WEDNESDAY, SEPT. 4, 1929, CONCERNING INDUSTRIAL COMMISSION FEES

To the House of Delegates:

Your Committee feels deeply its responsibility and the importance of the question submitted to it.

Your Committee believes that the fee schedule now in force under the State Industrial Commission, compensation insurance fund, is wholly in-

adequate. We believe that the schedule needs a thorough revision if it is to be fair to the practicing physicians of Colorado. In many points it is now decidedly unfair.

It is the sense of this Committee that definite action must be taken by the Colorado State Medical Society and be communicated to the State Industrial Commission and the General Assembly.

We recommend that this Special Committee be continued, so that in the interim between meetings of the House of Delegates, intensive study may be undertaken and the proper measures taken toward preparation of a truly adequate fee schedule to be presented in the name of this Society to the Industrial Commission and the Legislature.

Your Committee wishes to concur in the recommendation of the Committee on Public Policy concerning the need for a special meeting of the House of Delegates immediately prior to the meeting of the Legislature, so that the question of Industrial Commission fees and such other legislative matters as may arise may be given proper consideration at the seasonable time. Your Committee recommends that such a special meeting be called at a date to be fixed by the Executive Committee.

CRUM EPLER,
JOHN R. ESPEY,
HAROLD T. LOW,
WM. H. HALLEY,
H. G. GARWOOD,
WILLIAM SENGER, Chairman.

President Senger: "You have heard the report of this Committee. What is your desire?"

Dr. Garwood: "There is just one point there that comes to my mind, and that is this: Are the delegates to the next meeting of the State Society elected in time so that they can appear before the Legislature? The Legislature is elected in the fall, and it is a question whether the delegates to the State Society are elected prior to that time so that they can meet with the Legislature."

President Senger: "These delegates hold over until the next election."

Dr. Stephenson: "There is always a set of delegates, at any time in the year."

President Senger: "I might say this: I happen to know that the Industrial Commission fixes their own fees, and that the Legislature does not have anything to do with fixing the fees. They discuss it with two or three doctors, and the lowest fee they get they accept and put down. They arbitrarily arrange the fees, so I think it is entirely a question of taking it up with the Industrial Commission and have them revise their fees."

It was moved, seconded and carried that the report be adopted.

Dr. Kemper: "Mr. President, I would like to offer a resolution."

RESOLUTION

Be It Resolved, That the House of Delegates of the Colorado State Medical Society, assembled in its fifty-ninth Annual Session, express the deep feeling of gratitude that this Society holds toward the Weld County Medical Society, particularly to its Committee on Arrangements; to the Auxiliary of the Weld County Medical Society; to the Colorado State Teachers' College; to the City of Greeley and its local press and its citizens generally; and to the officers of our Society and our Committee on Scientific Work, for the generous gift of their time and services that have made this Annual Session a most outstanding one in the history of the Colorado State Medical Society.

President Senger: "You have heard this resolution."

Dr. Garwood: "I move its adoption."

The motion was regularly seconded.

President Senger: "All those in favor of the motion signify by saying 'Aye,' contrary 'No.' Unanimously carried.

"Is there any further business to come before the House? Is there any unfinished business?"

Dr. Garwood: "I would like to ask about the reports turned over to the Committee on Miscellaneous Business in regard to the people of Washington, D. C., being granted the franchise."

Dr. Beyer: "I will report on that, Mr. President. The Committee, after talking the matter over, felt that it did not fall upon this Society or the delegates to take sides on such an old issue, and we just let the matter drop. It is a political issue, as far as we can see—the granting of franchise to the citizens of the District of Columbia."

It was thereupon moved, seconded and carried that the report of the Committee be adopted.

President Senger: "We have another resolution to consider."

Dr. Halley: "Mr. President, I want to offer a resolution regarding the great number of deaths resulting from automobile accidents."

RESOLUTION

Resolved, That the Colorado State Medical Society deplores the appalling increase in automobile accidents and the resulting increase in injuries and deaths to our citizens, and be it further

Resolved, That the Colorado State Medical Society offer the assistance of the profession to city, county and state officials and call upon them for redoubled efforts in the reduction of these accidents.

It was moved, seconded and carried that the resolution be adopted.

President Senger: "If there is no other business, the House of Delegates will stand adjourned."

Registration: Delegates, 52; other members, 266; guests, 26; total, 344.

HARVEY T. SETHMAN,
Executive Secretary.

PROCEEDINGS OF THE GENERAL MEETINGS*

Tuesday, Sept. 3, 1929

Morning Meeting

The meeting was called to order at 9:00 a. m. by the President, Samuel B. Childs, M. D.

President Childs: "The Fifty-ninth Annual Session of the Colorado State Medical Society is now declared to be in active session for the Scientific Program.

"It is my privilege, as well as my pleasure, to ask Dr. C. E. Harris and Dr. J. J. Waring to escort Dr. William Senger, of Pueblo, to the rostrum, to be installed as President for the ensuing year.

"My best wish for Dr. Senger is that the Society extend to him the hearty cooperation which it has extended to me over the previous year." (Applause.)

President Childs then presented the gavel to President-elect Senger.

President Senger: "And my best wish is that I may conduct the meetings here and be as good

*Papers and discussions which formed a part of the scientific program of the General Meetings will appear in succeeding issues of Colorado Medicine.

a President as Dr. Childs has been during the past year.

"There are several changes in the program. The first innovation is that we are to receive an address from Dr. E. A. Cross, Vice President of the Colorado State Teachers' College, who is Acting President during the absence of Dr. George Frazier."

Dr. Cross: "Mr. President, members of the Colorado State Medical Society, and guests: Let me assure you that you are not going to be bored by a long speech, nor a formal speech. We are very happy that a meeting of your Association comes during the vacation period, for that makes it possible for you to come to us here at this institution. We enjoy our vacations, and sometimes we enjoy the vacations of others. I am enjoying the vacation this morning because it gives me the privilege, as well as the duty, of welcoming you here, and extending the courtesies of the institution to you during your meeting. I am very glad to welcome this organization, because it is the only organization of professional men and women that I know of that is doing its best to work itself out of a job. I thought that out yesterday, and it sounded like a good phrase. and then I got to questioning it, and it now seems to me that you are probably not working yourselves out of a job, but working the next generation out of a job, for you must realize that each time you cross off one of the scourges of human beings from the calendar of diseases that you have decreased the need for physicians to a certain extent, and my best wish to you is that I may live to see other diseases follow bubonic plague, smallpox and typhoid, now regarded as disgraces to a community rather than visitations of Providence.

"Just this one thought: The institution here is an institution for the education of teachers, and you will find that on that question it has some limitations from a scientific point of view; but, at least, we know what we are trying to do and we confine ourselves to that task. We do not have as complete equipment as we should desire for the education of teachers, but we have room at least for the meeting of a session such as yours, and we hope you will feel free to use everything we have. As the old lady said about the cake, if you find that you need something you do not see, ask for it; probably we have it in the cellar under the teakettle. Be free, then, to use everything we have, and ask for things that you need if you do not see them already provided for you. You see, I feel perfectly safe in leaving the institution in your hands. If anything gets wrong with the institution while you are here, you can operate on it, or give it local treatment, as you see fit. But certainly, from the point of view of the officers of the institution, you are welcome, and we hope for you a very successful meeting." (Applause.)

The scientific program was then begun, papers and discussions being presented in the following order:

"Uterine Dysfunction in Middle Age," read by the author, J. A. Matlack, M. D., Longmont. Discussed by Drs. G. E. Cheley and F. B. Stephenson, and by the author, in closing.

"Exploration and Certain Operations on the Female Pelvis Through Cholecystectomy Incisions," read by the author, C. E. Tennant, M. D., Denver. Illustrated with moving pictures. Discussed by Dr. Leonard Freeman and by the author in closing.

"Consideration of Some of the Newer Aspects of Carcinoma," read by the author, H. E. Robertson, M. D., Mayo Clinic, Rochester, Minn. No discussion.

"Action of the Lipoids from the Tubercle Bacillus in Producing Tubercles," read by the author, Florence Sabin, M. D., Rockefeller Institute, New York City. No discussion.

President Senger then called upon Dr. C. E. Harris to explain the "Blue Ribbon Children" movement.

Dr. Harris: "You will remember that Dr. R. P. Forbes' Committee reported last year to the House of Delegates, and he spoke briefly on the new movement under way by this Council of Statewide Health Agencies. It seems fitting at this time to call your attention, in connection with the periodic health examinations, to this particular movement, which is directed primarily and intensely to the examination of children.

"Now, this Council takes in many of our welfare organizations, all of which are interested in public health, the Colorado Agricultural Extension Division, the Child Welfare Bureau, the University of Colorado School of Medicine, the Tuberculosis Association, and so on. On this matter of periodic health examinations and health review for children, as a sort of incentive to better efforts along this line, we have issued this little circular, 'How Many Blue Ribbon Children in Your Community?'

"There are certain standards to which children must measure up before they may be properly certified by attending physicians as Blue Ribbon children. We are particularly anxious when you go home that you should not get the idea that you are simply, in a perfunctory way, to sign up a child's certificate. This certificate should come only after a regular surgical examination to see whether this child, in truth and in fact, does comply with these provisions for periodic health examinations.

"Incidentally, I believe that the examination of children does provide one of the very easiest and most practical entering wedges for the advancement of periodic health examination. In what little talking I have done on this subject, I have not been above mentioning the practical self-interest of the profession in this movement. It is very true, as our host said this morning when he welcomed us, and I think we all agree, that we are constantly trying to work ourselves out of a job. We probably do not need to worry very much about that for a few years to come. The history of everything which has brought about a definite advance has enlarged the field of medicine. Theoretically, yes, we are trying to work ourselves out of a job, and yet every new discovery, without exception, calls for the enlargement of our field of activity. Perhaps we better think back a little about some of the things that were producing revenue ten or fifteen or twenty-five years ago, which are no longer producing revenue. The beauty about this whole proposition is that we have a perfectly legitimate revenue producer which is consistent with the very highest ideal of medicine itself, namely, the promotion of public health and the eradication of sickness.

"Now, Miss Helen L. Burke, who is very much interested in this movement and is connected with the Tuberculosis Association, has a goodly number of these blanks on hand, which we hope will be distributed freely among the members so that you will take them home. If you want any further information, we hope that you will call at the scientific exhibit downstairs, where these blanks will be distributed. We should not go

home with the idea that this thing is going to carry itself by its own weight. We have first two propositions. We have to sell the periodic health examination to the physicians. You are not sold on it yet. And about the harshest indictment that could be brought against it today is that we are more interested in creative medicine than preventive medicine. Believe it or not, it is true. It is intensely practical, and you are going to find it so from a business standpoint."

The meeting then adjourned.

Evening Meeting

The evening meeting was open to the public.

President Senger called the meeting to order and introduced Dr. Florence Sabin of the Rockefeller Institute, who then demonstrated the "Canti Film," prepared by Dr. Reginald Canti of St. Bartholomew's Hospital, London, for the Imperial Cancer Research Institution.

After adjournment, the President's Reception and Ball were held in the Woman's Club Building.

Wednesday, Sept. 4, 1929

Morning Meeting

President Senger called the meeting to order at 9:00 a. m.

The scientific program was then begun, papers and discussions being presented as follows:

"The Differentiation of Intra-abdominal Lesions from Intercostal Neuralgia of the Abdominal Wall," read by the author, John Berton Carnett, M. D., University of Pennsylvania, Philadelphia, Pa. Discussed by Drs. C. E. Tennant, G. H. Curfman, J. N. Hall, H. G. Garwood, Leonard Freeman, R. H. Finney, Edward Delehanty, W. B. Yegge, O. M. Gilbert, F. N. Cochems, and by the author, in closing.

Dr. J. J. Waring announced that Dr. W. G. Lennox of the Harvard Medical School would be unable to deliver his paper because of injuries received in a cloudburst. The meeting directed President Senger to telegraph Dr. Lennox, expressing the Society's best wishes for a speedy recovery.

The meeting then adjourned.

Afternoon Meeting

Fourth Vice President O. P. Shippey, Saguache, presiding, called the meeting to order at 2:00 p. m.

Vice President Shippey introduced President William Senger, who then delivered his annual address.*

The scientific program was then resumed, as follows:

"Physicians' Liability Insurance," read by the author, Mr. Paul M. Clark, attorney for the Aetna Life Insurance Co., Denver. No discussion.

"The Newer Physiology of Reproduction," read by the author, T. Mitchell Burns, M. D., Denver. Discussed by Dr. R. W. Whitehead.

"The Harvey Film." Motion picture film demonstrated by Gerald B. Webb, M. D., Colorado Springs.

"A Combined Method of Treatment of Carcinoma of the Cervix," read by the co-authors, Aubrey H. Williams, M. D., Harmon P. Brandenburg, M. D., and E. W. Perrott, M. D., Denver. Illustrated with lantern slides. Discussed by Dr. Sanford Withers and by two of the authors, Drs. Perrott and Brandenburg, in closing.

"Primary Pneumococcic Peritonitis in Childhood with Case Reports," read by the author, Emanuel Friedman, M. D. Discussed by Drs. R. P. Forbes, George B. Packard, Charles N. Meader and O. S. Fowler, and by the author, in closing.

"Finding the Facts About Tuberculosis in Colorado," read by title only. Author, Emory J. Brady, M. D., Colorado Springs.

"Symposium on Syphilis." (Six ten-minute papers.) Read by the authors, Drs. A. J. Markley, Philip Hillkowitz, J. B. Davis, G. S. Johnson, W. S. Dennis and W. M. Bane, all of Denver. Discussed by Drs. L. W. Bortree, Harold T. Low and O. S. Philpott, and by four of the authors, Drs. Markley, Hillkowitz, Davis and Johnson, in closing.

The meeting then adjourned.

*Published in full in the October, 1929, issue of Colorado Medicine.

Thursday, Sept. 5, 1929

Morning Meeting

President Senger called the meeting to order at 9:00 a. m.

Dr. C. H. Graves then presented the report of the Committee on Necrology, as follows:

REPORT OF THE COMMITTEE ON NECROLOGY

To the Officers and Members of the Colorado State Medical Society:

Your Committee is constrained to report the sad loss of a number of members of our Society, who have departed from our midst since our convention a year ago. Some of them have rendered valuable service to our Society and the profession of medicine and others have performed their useful and humanitarian function in their less exalted sphere, ministering to the sick and afflicted.

All will be sadly missed from our rolls.

May their good deeds serve as a stimulus to tht rest of us to carry on our daily task.

Obituaries of some of the deceased have appeared in the columns of our State Journal at the time of their demise.

The following is a list of deceased members, with some biographical data pertaining to each:

Walter W. Reed, Boulder, Colo., March 10, 1929, acute leukemia. Born, 1866, Illinois; graduated from University of Colorado School of Medicine, 1893; licensed in Colorado, 1893; member of the Boulder County Medical Society.

Eugene H. Robertson, Boulder, Colo., Feb. 6, 1929, Parkinson's disease. Born, 1867, Michigan; graduated from University of Michigan, Department of Medicine and Surgery, 1895; licensed in Colorado, 1897; honorary member of the Boulder County Medical Society.

William S. Warder, Boulder, Colo., Feb. 18, 1929, nephritis. Born, 1876, West Virginia; graduated from Keokuk Medical College, 1902; licensed in Colorado, 1921; member of Boulder County Medical Society.

Benjamin H. Matthews, Denver, Colo., Oct. 30, 1928, uremia. Born, 1883, Kansas; graduated from University of Colorado School of Medicine, 1906; licensed in Colorado, 1906; member of the Medical Society of the City and County of Denver.

William Hardy Sharpley, Denver, Colo., Dec. 5, 1928, heart disease. Born, 1854, Virginia; graduated from Gross Medical College, 1898; licensed in Colorado, 1898; member of the Medical Society of the City and County of Denver.

Foster Harrington Cary, Denver, Colo., Dec. 21, 1928, tuberculosis. Born, 1874, Massachusetts; graduated from Harvard Medical School, 1898; licensed in Colorado, 1916; member of the Medical Society of the City and County of Denver.

Kate Walker Beall, Denver, Colo., March 4, 1929. Born, 1851; graduated from Homeopathic Medical College of Missouri, 1899; licensed in Colorado.

1914; member of the Medical Society of the City and County of Denver.

Judson Oliver Roberts, Denver, Colo., March 19, 1929, heart failure following an automobile accident. Born, 1863, Ohio; graduated from Kansas City Medical College, 1892; licensed in Colorado, 1900; member of the Medical Society of the City and County of Denver.

Niels Christian Beck, Denver, Colo., March 29, 1929, pulmonary tuberculosis. Born, 1876, Ireland; graduated from Denver & Gross College of Medicine, 1907; licensed in Colorado, 1908; member of the Medical Society of the City and County of Denver.

Jefferson Demetrius Gibson, Denver, Colo., June 17, 1929. Born, 1863, Alabama; graduated from the University of Alabama School of Medicine, 1898; licensed in Colorado, 1904; member of the Medical Society of the City and County of Denver.

Alfred Milton Moore, Denver, Colo., July 26, 1929. Born, 1865; graduated from Hahnemann Homeopathic University, 1902; licensed in Colorado, 1902; member of the Medical Society of the City and County of Denver.

John W. O'Connor, Denver, Colo., Aug. 5, 1929. Born, 1852, Illinois; graduated from Rush Medical College, 1879; licensed in Colorado, 1881; member of the Medical Society of the City and County of Denver.

Walter A. Jayne, Denver, Colo., Aug. 29, 1929, adenocarcinoma of prostate. Born, Orange, N. J., Dec. 4, 1853; graduated from Columbia University, 1875; licensed in Colorado, 1883; trustee Medical Society of the City and County of Denver.

William Armstead Campbell, Colorado Springs, Colo., Feb. 15, 1929, coronary embolus. Born, 1856, Ohio; graduated from Ohio Medical College, 1880; licensed in Colorado, 1890; member of the El Paso County Medical Society; Past President of the Colorado State Medical Society.

A. H. Hepler, Glenwood Springs, Colo., March 25, 1929. Born, 1871, Pennsylvania; graduated from the University of Kansas Medical School, 1897; licensed in Colorado, 1909; member and President of the Garfield County Medical Society.

R. J. McDonald, Leadville, Colo., May 14, 1929, pneumonia. Born, 1862, Canada; graduated from University of Michigan School of Medicine, 1895; licensed in Colorado, 1895; member of the Lake County Medical Society.

J. F. Hart, Julesburg, Colo., Sept., 1928. Born, 1872; graduated from University of Nebraska Medical School, 1904; licensed in Colorado, 1919; member of the Northeast Colorado Medical Society.

Richard Warren Corwin, Pueblo, Colo., June 19, 1929, carcinoma of the prostate. Born, 1852, New York; graduated from the University of Michigan Medical College, 1878; licensed in Colorado, 1881; member of the Pueblo County Medical Society; Past President of the Colorado State Medical Society.

Evelyn B. Price, Pueblo, Colo., Dec. 3, 1928, brain tumor. Born, 1882, Pennsylvania; graduated from Denver Homeopathic College, 1908; licensed in Colorado, 1913; member of the Pueblo County Medical Society.

J. N. Weddell, DeBeque, Colo., July 21, 1929, heart failure. Born, 1858, Pennsylvania; graduated from University of Pittsburgh Medical School, 1887; licensed in Colorado, 1910; member of the Garfield County Medical Society.

COMMITTEE ON NECROLOGY,
C. H. GRAVES,
W. B. HARDESTY,
PHILIP HILLKOWITZ, Chairman.

Mr. Harvey T. Sethman, Executive Secretary, presented a summary of the proceedings of the House of Delegates.†

The scientific program was then begun, papers and discussions being presented as follows:

"Air Embolism as a Complication in Artificial Pneumothorax Therapy," read by the author, E. H. Bruns, Lieut. Col., Medical Corps, U. S. A., Fitzsimons General Hospital, Aurora. Discussed by Drs. S. Simon and I. D. Bronfin, and by the author, in closing.

"Causes and Prevention of Blindness in Colorado,"* read by the author, Edward Jackson, M. D., Denver. Discussed by Drs. William H. Crisp, J. J. Pattee, and J. Rosslyn Earp, and by the author, in closing.

"Diagnosis and Treatment of Wood-Tick Infection," read by the author, F. E. Becker, M. D., University of Colorado. Discussed by Drs. M. A. Spangelberger, C. S. Faust, and J. Rosslyn Earp, and by the author, in closing.

Here President Senger interrupted the scientific program to ask Drs. P. J. McHugh and J. B. Crouch to escort the newly elected President-elect, William A. Kickland, M. D., Fort Collins, to the rostrum for introduction to the Society.

President-elect Kickland: "Gentleman of the Society: I appreciate more than I can tell you the honor of being elected President of this Society. I realize, however, that the honor is not to me, but to the members of the profession of northern Colorado, of which I happen to be a member. I wish to express particularly my appreciation to my own home Society, and the efforts of the delegates, particularly, who have labored long, hard, persistently and well. I only hope that I may in a measure keep up the standards which have been established by my predecessors. I thank you very much."

The scientific program was then resumed, as follows:

"Symposium on Acidosis."** (Four fifteen-minute papers and one general summary.) Read by the authors: "Bio-Chemical Considerations," Robert Lewis, M. D., University of Colorado; "Pediatric Considerations," Elmer L. Timmons, M. D., Colorado Springs; "Surgical Considerations," W. B. McCrossin, Jr., M. D., Colorado Springs; "General Medical Considerations," F. M. Heller, M. D., Pueblo; summary and "Address on Acidosis," Alexis F. Hartmann, M. D., Washington University, St. Louis, Mo. Discussed by Drs. J. J. Waring and O. S. Fowler.

The meeting then adjourned

Afternoon Session

President Senger called the meeting to order at 2:00 p. m., and introduced the guest of honor, Prof. Charles Richet, of Paris, France, the first essayist on the afternoon's scientific program.

"Food Allergy," read by the author, Prof. Charles Richet, Paris, France. No discussion.

"Congenital Clubfoot with Particular Reference

†See minutes of the House of Delegates, this issue.

*Published, with discussions, in this issue of Colorado Medicine.

**"Symposium on Acidosis," in full, with discussions, published in the November, 1929, issue of Colorado Medicine.

to Treatment," read by the co-authors, Robert G. Packard, M. D., Denver, and Hamilton I. Barnard, M. D., Denver. Discussed by Drs. Henry Wilcox, Atha Thomas, and Charles E. Sevier.

"Massive Atelectasis of the Lung," read by the author, Clough T. Burnett, M. D., Denver. Discussed by Drs. O. M. Gilbert and T. E. Carmody, and by the author, in closing.

President Senger then announced the Fifty-ninth Annual Session of the Colorado State Medical Society adjourned, sine die.

HARVEY T. SETHMAN,
Executive Secretary.

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WOMAN'S AUXILIARY

Excerpts from the President's Report

(Delivered at the 1929 Annual Session, Woman's Auxiliary to the Colorado State Medical Society, Greeley, Colo., Sept. 4, 1929)

We first wish to stress the desirability of organization, if for no other reason than for the opportunity of meeting at annual sessions. Contacts made at these gatherings are invaluable, developing a broader understanding and good will among physicians' families.

A medical society without an active auxiliary is akin to an active physician without a wife. An auxiliary will promote greater interest and activity in every medical society, inspiring larger attendance at local and state meetings. The doctor no longer hesitates to go, but takes his family, knowing they will be cared for and entertained.

In May, 1922, the National Auxiliary was formed during the A. M. A. meeting in St. Louis. Ten states answered the roll-call. The year 1928 found thirty-one states organized and seven more in active process of organization.

In January our State Auxiliary allowed eighteen six-month subscriptions to Hygeia, given as prizes to rural schools in the Christmas seal contest. The board of trustees authorized expenditures of $75.00 for a piano for the receiving section of the Colorado State Hospital, Pueblo, and $25.00 to purchase kindergarten supplies for the children's ward, Colorado General Hospital, Denver.

Hygeia booths have been arranged at medical and teachers' meetings in several counties. The educational committee has sponsored health talks in schools, federated clubs, and Parent-Teacher Association meetings. County groups have assisted in Christmas seal sales and have helped bring Hygeia before the public.

We feel justly proud of our first "Year Book," and of its editor, who merits our praise and gratitude.

Denver county has practically doubled its membership in a seventeen-month period.

Mesa county has entered the fold with ten enthusiastic members.

We take this opportunity to express our thanks to the Weld county unit and the members of the Weld County Medical Society for their generous hospitality, and our deep appreciation of the attractive program prepared for the entertainment of their guests. Weld county reports splendid results in its short period of organization. Weld and Mesa counties were the two new units organized during the year.

Experience of former office holders has shown the necessity of having the President, Treasurer and Recording Secretary in the same town, saving time, energy, stationery and stamps.

We recommend campaigning for county units regardless of discouragements. Eighteen counties still open form a wide field for action.

We recommend the furthering of Hygeia subscriptions for distribution, sponsoring the same number of six-month subscriptions to rural schools as prizes in the Christmas seal contest.

We recommend pledging a specified sum annually for benevolent purposes, a committee to be appointed to disburse the fund.

We extend thanks to all county officers who have given prompt attention to official correspondence, and for their willing co-operation in many other ways. Our gratitude goes to all state officers, committee chairmen, and members, for their encouragement, confidence, and help.

We also thank Colorado Medicine for setting aside a section for auxiliary activities and generously giving our program space in the official pamphlet; to the Denver press, for publishing articles of interest to our members; to Mrs. Ward Burdick, who graciously gave her time to the distributing of 360 Year Books.

MRS. GEORGE W. MIEL.

What Price Public Health Education

Widespread fundamental knowledge of hygiene is necessary to insure public health progress. The writer has in mind two men, one a professor of Greek and Latin, the other a corporation lawyer, who, not so many years ago, took their children out of school—because they did not believe in vaccination. Lack of intelligence could hardly be argued, but lack of a knowledge of the elementary principles of immunology could. Certainly we should teach in our schools more fundamental knowledge about the body, bacteriology, sanitation and the principles of healthful living. Study and effort must be applied by intelligent people in order to use knowledge to control conduct. No lesser price will purchase health. Appropriations of money are necessary, but money alone can not bring understanding. All that public health science offers should be secured for the community and public health officers need the stimulation and moral support of an understanding appreciation. The enlightened health officer may propose a new life-saving measure, but unless the people understand and approve, his labor is seriously discounted.

There is no dogma, "ism," cult, formula or set of rules that points the sure way to health. The benefits of the progress of science may be effectively blocked by a public that does not understand.

Written after reading "A Formula for Health," by H. E. Kleinschmidt in October Hygeia.—Health News.

Some Side-lights Upon the Magnitude of the Illicit Traffic

In the course of the 12th Session of the Advisory Committee it became more than ever apparent that the unit of weight in the illicit traffic is neither the ounce, nor the pound, nor the hundredweight, but simply the ton.

The French delegate referred to a request submitted to his government, to permit the passage through France of a shipment of no less than four tons of Heroin, en provenance of a neighboring country. Permission was refused. The Advisory Committee did not show any undue surprise at the existence of a lot of four tons of Heroin ready for shipment to the Far East, where it would have killed or created addicts.

If the unit in the wholesale illicit traffic is the ton, the unit, so far as the addict is concerned, is the dose—and these four tons of Heroin represent some 240,000,000 doses.

If the wholesale price of the four tons of Heroin in question is compared with their total retail selling price to the addict, one obtains a slight idea of the forces at work to prevent a limitation of manufacture.—Published by permission of The Anti-Opium Information Bureau—Geneva.—Narcotic Education.

De Beque Seeks Physician

Prominent residents of De Beque are eager to receive correspondence from physicians who might like to locate there. Since the death of Dr. J. N. Weddel the town has been without a local doctor.

MEDICAL SOCIETIES

This department of Colorado Medicine is set aside for reports of recent meetings, announcements of future meetings, and accounts of other important activities of the county and district societies composing the Colorado State Medical Society. Every meeting of every local society should be reported. If your society is not represented, see that your secretary reports the next one, or that some other member is appointed to the task. Other societies want to know what your society is doing.

Medical Society of the City and County of Denver

At the meeting of the Denver County Medical Society, Tuesday, Nov. 19, Dr. A. C. Ivey, Professor of Physiology at Northwestern University Medical School, delivered an unusually interesting lecture on "A Hormone Mechanism for Gall-bladder Contraction and Evacuation." His review of a series of careful experiments on the evacuation of the gall-bladder was illustrated by means of convincing lantern slides and moving picture demonstrations. He seemed to have proved conclusively that the gall-bladder evacuates by means of an intrinsic gall-bladder musculature. He also showed that this evacuation is controlled by the sphincter of Oddi.

The meeting was one of the best attended this year.

* * *

Boulder County Medical Society

Dr. Franklin G. Ebaugh, director of the Colorado Psychopathic Hospital, delivered the principal paper before the November meeting of the Boulder County Medical Society, held Nov. 7 at the Boulderado Hotel. Dr. Ebaugh spoke on "Mental Hygiene" and the paper evoked a good discussion.

* * *

El Paso County Medical Society

Members of the Faculty of the University of Colorado School of Medicine presented the scientific program of the November meeting held at the El Paso Club, Nov. 20. Dr. George B. Packard, Department of Surgery, presented "Empyema in Children"; Dr. Frank B. Stephenson, Department of Roentgenology, presented "X-ray in Empyema, Interlobar Localizations." Dr. Samuel H. Gray, Department of Pathology, presented "Primary Carcinoma of the Lungs." Mr. Harvey T. Sethman, Executive Secretary of the Colorado State Medical Society, gave an informal talk on highlights of the recent Annual Conference of State Secretaries and Journal Editors held at the American Medical Association in Chicago.

The meeting was preceded by a venison dinner, the venison being a present to the Society from Dr. T. R. Knowles.

W. A. CAMPBELL, Jr., M.D., Secretary.

* * *

Fremont County Medical Society

Dr. George E. Rice of Pueblo presented the principal paper before the October meeting of the Fremont County Medical Society held in Canon City, Oct. 28. Dr. Rice's subject was "Surgical considerations of Sympathetic Nervous System." General discussion of thyroid diseases followed. The meeting was well attended.

* * *

Larimer County Medical Society

"Protective Insurance," an address by Mr. H. G. Miller of Denver, representing the Aetna Life Insurance Company, was the feature of the November meeting of the Larimer County Medical Society held at the College Cafeteria, Fort Collins, Nov. 6.

* * *

Garfield County Medical Society

The Garfield County Medical Society met at the office of Dr. R. B. Porter, Glenwood Springs, Oct. 31, 1929.

Mr. Harvey T. Sethman, Executive Secretary of the Colorado State Medical Society, met with us and gave a very interesting talk on his duties and what he hopes to do in the future for the state and local societies. He also gave some very good pointers on how to conduct the societies in outlying communities such as this one.

Many of the men have to come long distances. The Garfield County Society has been quite active in regard to meetings for the past several years, considering that some of the men had to drive forty or fifty miles. The meetings this past summer have been rather lax. This may be due to the fact that the members have heard papers from all the men in the Society on numerous occasions, and are tired of local talent. At meetings in the past when we have had men from elsewhere they have been well attended. We hope to have an outside speaker for the November meeting, if Mr. Sethman is able to arrange it.

Members present at the October meeting were Drs. W. R. Tubbs, Carbondale; L. R. Plaugher, Gilman; J. L. Stevens, New Castle; J. L. Cavanagh, W. W. Crook and R. B. Porter, Glenwood Springs. Dr. Tubbs gave a report of the Greeley state meeting, and told some of his best stories. Dr. Williams, D.D.S., Glenwood Springs, guest of the Society, read a good paper. After the meeting the men repaired to Dr. Cavanagh's apartment for a radio party.

R. B. PORTER,
Secretary.

Northwestern Colorado Medical Society

"Early Diagnosis of Tuberculosis" was the principal paper read before the autumn meeting of the Northwestern Colorado Medical Society at Steamboat Springs, Oct. 10. Dr. John B. Crouch, Colorado Springs, first vice president of the Colorado State Medical Society, was the essayist, on behalf of the Colorado Tuberculosis Association. He illustrated his paper with lantern slides and x-ray films, and a good discussion followed.

Other guests at the meeting were Dr. Leo W. Bortree, Colorado Springs, treasurer, and Mr. Harvey T. Sethman, Denver, executive secretary, of the State Society. Mr. Sethman addressed us informally on the activities of the State Society under the new plan of organization, emphasizing the personal service of his office as intermediary between individual members and the state and federal governmental offices in Denver, and the ability of his office to get special speakers for county societies.

Our Society wishes to express its appreciation of the efforts of these men in coming to the meeting.

At the business session, the 1929 officers were re-elected for 1930: Dr. W. W. Sloan, president; Dr. D. M. Cook, vice president; Dr. F. J. Blackmer, secretary-treasurer. The by-laws were amended to provide for the increase in State Society dues. A resolution advocating post-mortem examinations of physicians, proposed by the State House of Delegates at the 1928 annual session, was adopted. Drs. Duane Turner, C. J. Ben-

net and R. F. Courtney, all of Oak Creek, were elected as new members.

The meeting was preceded by a dinner of the members, guests and ladies.

F. J. BLACKMER,
Secretary.

Morgan County Medical Society

On Nov. 25, 1929, the Morgan County Medical Society held a meeting for the purpose of reorganization. The meeting was conducted in the office of Dr. A. F. Williams at Fort Morgan. After the business meeting the Society was addressed by the Executive Secretary of the Colorado State Medical Society, Mr. Harvey T. Sethman.

Dr. E. R. Johnson was elected to membership. Dr. Ira J. Clark was accepted on transfer from the Medical Society of the City and County of Denver, and Dr. T. M. H. Hotopp was accepted on transfer from the Garfield County Medical Society.

Officers were then elected for 1930 as follows:

President, Dr. E. E. Evans.

Vice President, Dr. C. F. Eakins.

Secretary-treasurer, Dr. E. R. Johnson.

Delegate to the State Society, Dr. H. M. Hawthorne; Alternate, Dr. F. W. Lockwood.

Censors: Dr. E. E. Evans, three-year term; Dr. C. F. Eakins, two years; Dr. E. R. Johnson, one year.

EMMETT R. JOHNSON,
Secretary.

BOARD OF TRUSTEES

Minutes of November Meeting Nov. 2, 1929

Colorado Springs:

The meeting was called to order at 8:00 p. m. by President Senger. Secretary Stephenson, Treasurer Bortree and Executive Secretary Sethman were present.

A ruling was passed that, under the constitution and by-laws as at present worded, a member moving from the jurisdiction of one county society to the jurisdiction of another, may continue to renew his membership in his original society; and that the society holding jurisdiction over his new residence has no power to cause his expulsion. A current issue involving dispute between two county societies was ordered referred to the council. The Executive Secretary was directed to draw an amendment to the by-laws that will control such contingencies in the future and have such amendment presented to the 60th Annual Session.

The Executive Secretary was directed to draw an amendment to the by-laws to be presented to the 60th Annual Session to re-word the last paragraph of Chapter XIII, Section 6, as amended at the 59th Annual Session in accordance with suggestions from the American Medical Association.

The Trustees disapproved a proposed plan for publication of a photograph album of the Society's membership by outside interests.

The Trustees ruled that in arrangements for the 60th Annual Session the Committee on Local Arrangements shall have final authority on all matters pertaining to the meeting except such as come under the Committee on Scientific Work, but ruled that no business arrangements or contracts be entered into without the knowledge of the Executive Secretary as business manager, and that the signature of the Executive Secretary shall be attached to any such arrangements and contracts before they shall be binding upon the Society.

The Trustees confirmed a ruling that had been previously made by correspondence: That non-resident members of the Colorado State Medical Society who reside outside the state of Colorado shall not be required to pay the increase in dues which goes into effect for all other resident and non-resident members for the calendar year of 1930; thus the 1930 State Society dues will be $10.00 for resident members, $10.00 for non-resident members residing within the state and $5.00 for non-resident members residing outside the state. This ruling was made subject to approval by the House of Delegates at the 60th Annual Session.

The Executive Secretary was directed to write to the committees having charge of one or more parts of the Annual Session, informing them of the limitation imposed by the new budget system and directing that the budget must be strictly followed.

The Executive Secretary was directed to notify the Medical Society of the City and County of Denver that the Colorado State Medical Society will not recognize members as being in good standing until actual remittance of the members' dues has been made to the State Society. He was also directed to refuse issuance of membership cards or the notification to the American Medical Association until such remittance has been made.

Tentative plans were laid for informing the entire membership of the status of a campaign against existing vaccination statutes, now being prepared by medical cults.

It was directed that correspondence from the Colorado Tuberculosis Association concerning activities of the Legislative Committee for the Investigation and Study of the Tuberculosis Problem be published in Colorado Medicine.

Correspondence was presented concerning a death in Colorado which the State Society has been asked to investigate. The case involved a physician not a member of the Society. The Executive Secretary was directed to present the entire case to the State Board of Medical Examiners for such investigation and action as the Board may feel is justified.

The Executive Secretary was directed to request the appropriate county societies to assume jurisdiction of neighboring counties which do not contain a sufficient number of physicians to justify organization of separate county societies and to urge these existing societies to take into their membership such eligible physicians as reside in the adjoining counties.

The next meeting of the Board of Trustees was set for Saturday, Dec. 7, at 8:00 p. m., at Colorado Springs.

New Motion Pictures

Carlyle Ellis Films, 130 West 46th street, New York City, has recently issued a 350-foot film on the subject of Constipation. An analogy of the gasoline engine has been used and emphasis has been placed on right food and exercise as the right fuel.

Produced by Carlyle Ellis for the New York State Department of Health, and presenting the fundamentals of prenatal care, is another film, "Their First Baby," done in living silhouettes. It is available as a continuous one-reel narrative and as a series of five four-minute trailers.

"Confession of a Cold" is a new film about 1,000 feet (one reel), issued by National Motion Pictures Company, Indianapolis, Indiana, dealing with a cold sprite and showing the cause, effect, cure and prevention of colds.—National Tuberculosis Association.

NEWS NOTES

The National Secretaries' Conference

The 1929 Annual Conference of Secretaries and Journal Editors of Constituent State Medical Associations, conducted at the American Medical Association headquarters in Chicago, Nov. 15 and 16, was one productive of papers and discussions interesting and valuable to the entire profession—not alone to the secretaries and editors.

In the space here available, no adequate report of the meeting can be made. The writer is convinced, however, that all members of the Colorado State Medical Society will find ample food for deep thought in a reading of the conference proceedings, which will be published in the November and succeeding issues of the A. M. A. Bulletin.

Colorado was represented at the conference by both the Executive Secretary and Dr. C. F. Kemper, Scientific Editor of Colorado Medicine.

Of particular interest to our members should be the paper by Dr. E. R. Hays, Falls City, Neb., on "The Public Activities Committee of the Nebraska State Medical Association." This portrayed the successful introduction of a Medical Association exhibit at the state fair, which developed from a small venture that was in competition with similar exhibits by cults, to complete control of a huge health building annually, with consequent elimination of undesirable exhibitors.

An almost Utopian constitution and by-laws was presented by Dr. George H. Kress, Los Angeles, under the title of "A State Medical Association Constitution and By-Laws."

An excellent paper, "Why a State Medical Journal?" by Dr. J. H. Musser, New Orleans, invoked a discussion equally valuable, led by Dr. Morris Fishbein of the A. M. A. Journal.

A paper described by men of long experience as one of the greatest essays on the subject yet prepared was "The Present Status of Industrial Medicine," by Dr. Carey P. McCord, Cincinnati. Discussion of this and subsequent papers, "Some Important Problems," by Dr. Holman Taylor, Fort Worth, Texas; "Descartes Was Right," by Dr. Harry M. Hall, Wheeling, W. Va.; and "Quo Vadis?" by Dr. L. B. McBrayer, Southern Pines, N. C., displayed a generally pessimistic feeling current in the conference—a longing for return to the "good old days" of complete individualism in medicine combined with a feeling that those days are forever gone.

Dr. McBrayer was elected chairman of the conference, after opening remarks and a cordial welcome by Dr. Edward B. Heckel, Pittsburgh, Chairman of the Board of Trustees of the American Medical Association. The conference presented Dr. Olin West, Secretary of the A. M. A., with a beautiful watch as a token of esteem and expression of gratitude for Dr. West's many services to the state secretaries. The A. M. A. entertained the secretaries and editors at luncheon Friday, Nov. 15, and after adjournment at noon, Nov. 16, the group formed part of the 122,400 who witnessed the Notre Dame-Southern California football game at Soldiers' Field.

HARVEY T. SETHMAN,
Executive Secretary.

Many of our advertisers revise their ads every month. Read them, and let the advertiser know when you are interested in his product.

Dr. F. R. Spencer Honored

Dr. F. R. Spencer of Boulder was elected First Vice President of the American College of Ophthalmology and Oto-Laryngology at the recent meeting held in New York. Colorado physicians who attended this meeting were Drs. Edward Jackson, David H. Coover, Thomas E. Carmody, William A. Sedwick, James Shields, and Donald O'Rourke of Denver, F. R. Spencer of Boulder, and S. J. Chapman of Colorado Springs.

* * *

Colorado Hospital Association

A two-day joint meeting of the Colorado Hospital Association, the State Nurses' Association and the Colorado Dietetics' Association will be held at the Colorado General Hospital, Dec. 3 and 4.

The convention will be opened by Dr. Maurice H. Rees, Dean of the University of Colorado School of Medicine. Dr. Rees will also preside at the joint luncheon to be held in the hospital each of the two days.

Drs. Wm. H. Halley and J. L. Harvey of the Medical School Faculty will be the principal speakers at the first meeting. Other speakers will include Miss Margaret T. Warner, dietitian of the M. W. A. Sanitarium at Woodman; Dr. H. A. Green, vice president of the Hospital Association; Attorney John Pershing, Denver; Mr. Allen Redeker, Mrs. Helen E. Greenamyre and John E. Swanger.

Arrangements for the convention are in the charge of Frank J. Walter, superintendent of St. Luke's Hospital.

DENVER—Dr. W. J. LeRossignol has returned from a four weeks' trip in the East. He spent considerable time studying the wards of the Montreal General Hospital in addition to visiting members of his family and friends.

CHEYENNE WELLS—Dr. G. M. Gafford has been resting in Colorado Springs after an exceptionally strenuous summer at the hospital here.

PORTLAND—Dr. T. A. Davis expects to return to Portland in a few weeks. He has been visiting the Mayo Clinic.

COLORADO SPRINGS—Drs. H. B. McCorkle and J. H. Brown were elected Fellows of the American College of Physicians at a recent meeting of the college's board of regents.

DELTA—Dr. A. W. McArthur will return in January from a visit to Chillicothe, Mo.

PUEBLO—Dr. George E. Rice has returned to his home after attending the reunion of the Residents and Ex-patients' Association at the Mayo Clinic. Dr. Rice also attended the annual conference of the American College of Surgeons.

DENVER—Dr. Elsie Seelye Pratt and Dr. M. Ethel V. Fraser have returned from a five months' tour of Europe. They spent most of their time in the Scandinavian countries.

DENVER—Dr. L. C. Emile Beroard has received final naturalization papers. Dr. Beroard formerly was a subject of Great Britain and before coming to Denver practiced in Canada.

DENVER—Children's Hospital has opened a new heliotherapy department created by gifts from Mrs. H. H. Tammen.

DENVER—Drs. G. E. Cheley, H. G. Garwood, L. W. Greene, J. M. Shields and P. W. Whiteley have been elected to fellowship in the American College of Surgeons.

ENGLEWOOD—Dr. B. G. Carson, Secretary of the Arapahoe County Medical Society, has been named city health commissioner to fill the vacancy left by the death of Dr. A. O. Tiedt.

HOLLY—Dr. H. E. Colby has announced that he will move to La Junta and establish his practice there.

GRAND JUNCTION—Dr. K. K. Hanson has resumed his practice here after a month's visit at the Mayo Clinic.

STERLING—Dr. F. E. Palmer has returned after attending the Eye, Ear, Nose and Throat Clinic held in Chicago in conjunction with the recent meeting of the American College of Surgeons.

PUEBLO—Dr. Eugene H. Brown has resumed his practice after recovery from a serious illness.

BOULDER—Dr. Walter K. Reed returned early in November after a month spent in visiting hospitals and clinics in the East.

DENVER—Dr. Casper F. Hegner has been elected a member of the Board of Governors of the American College of Surgeons.

DENVER—A new fire-proof X-ray storage room has been constructed on the roof of St. Luke's Hospital. The storage room was designed to make impossible such fires as that which several months ago caused the disaster at the Cleveland Clinic.

PAONIA—Dr. William H. Feldman of Paonia, at present associated with the Mayo Clinic at Rochester, Minn., was the principal speaker before the Minnesota Trudeau Medical Society recently at Duluth, his subject being "Experimental Tuberculosis by Intra-cerebral Inoculation."

DENVER—Mr. Frank J. Walter, superintendent of St. Luke's Hospital, has been named a member of the American Hospital Association's Hospital Day Committee. Dr. Joseph R. Morrow, Ridgewood, N. J., is chairman. The Hospital Day program will be conducted May 12, 1930.

COLORADO SPRINGS—Directors of the Cragmor Endowment Association in charge of finances for Cragmor Sanitarium have announced that a nurses' home for the sanitarium will be erected in the near future at a cost of $50,000.

COLORADO SPRINGS—Dr. M. A. Forster this month celebrated his twentieth anniversary as superintendent of Cragmor Sanitarium. The institution was founded in 1906 by the late Dr. Solly and has now developed to the point where it spends $250,000 a year exclusive of expenditures by patients themselves.

FORT COLLINS—Dr. P. J. McHugh, injured Nov. 4 in an automobile accident, is convalescing satisfactorily.

SILVERTON—Dr. C. R. Buikstra has returned from an extended automobile trip through Utah and Arizona.

STERLING—At a recent meeting of the Staff of St. Benedict's Hospital plans were perfected for bringing the hospital up to the standards of the American College of Surgeons.

DENVER—Mr. Robert B. Witham, Business Administrator of Children's Hospital for the past two years, has been appointed superintendent of the hospital by action of the Board of Directors.

LONGMONT—Dr. Willard J. White, a member of the medical reserve corps of the U. S. Army since the World War, has been notified of his advancement to the grade of major.

DENVER—Dr. W. H. Twining of Aspen, member of the State Legislature and Epidemiologist for the State Board of Health, has undertaken a survey of Colorado hospitals to effect safeguards against explosion and fires in X-ray storage rooms.

BOULDER—Dr. Carl H. Graf has been appointed city health officer. Dr. Graf assumed office Nov. 1. He will have charge of all health matters not under the supervision of Dr. H. L. Morency, city sanitary inspector. His appointment is for an indefinite term, succeeding Dr. C. H. Bush who resigned July 1.

FORT MORGAN—Dr. George S. Johnson, Assistant Professor of Psychology and Neuropathology of the University of Colorado School of Medicine, has opened a course in "Mental Hygiene" here for the Extension Division of the University.

FORT COLLINS—Vaccination at the La Porte Avenue School has been ordered by the Board of Health following report of eight cases of smallpox in the vicinity of the school.

FRUITA—Dr. James S. Orr, who has been seriously ill for several weeks and who has undergone two major operations, is reported making slow but satisfactory improvement at the Fruita Hospital.

WOMAN'S AUXILIARY

Denver County

The second regular meeting of the Woman's Auxiliary of the Denver County Medical Society was held at the Denver General Nurses' Home, 250 W. Eighth avenue, on Monday, Oct. 21, at 2:30 p. m. After the transaction of business Mr. Arnold Ronnebeck, professor of sculpture at Chappell School of Art, addressed the club. His subject was "The Value of Art."

* * *

San Juan Basin

The San Juan Basin unit of the Woman's Auxiliary of the Colorado State Medical Society held its regular quarterly meeting the evening of Oct. 5, 1929. This auxiliary now has a membership of fifteen, seven from Durango and eight scattered over the counties comprising the San Juan Basin. Two members live in New Mexico. Some of the members travel as much as sixty-five miles each way to and from the meetings and rarely miss one. Plans are being made for philanthropic work.

* * *

Mrs. Sickenberger, wife of Dr. J. U. Sickenburger of Durango, Colo., died Oct. 23. Her death was very sudden although she had been in ill health following an attack of influenza in February.

* * *

Mrs. E. S. Stong of Durango, and her three sons, Kohn Elliott, Paul and David, left Nov. 2 for a trip to Rochester, Minn., and Chicago. Dr. Stong will join them later to visit the Mayo Clinic.

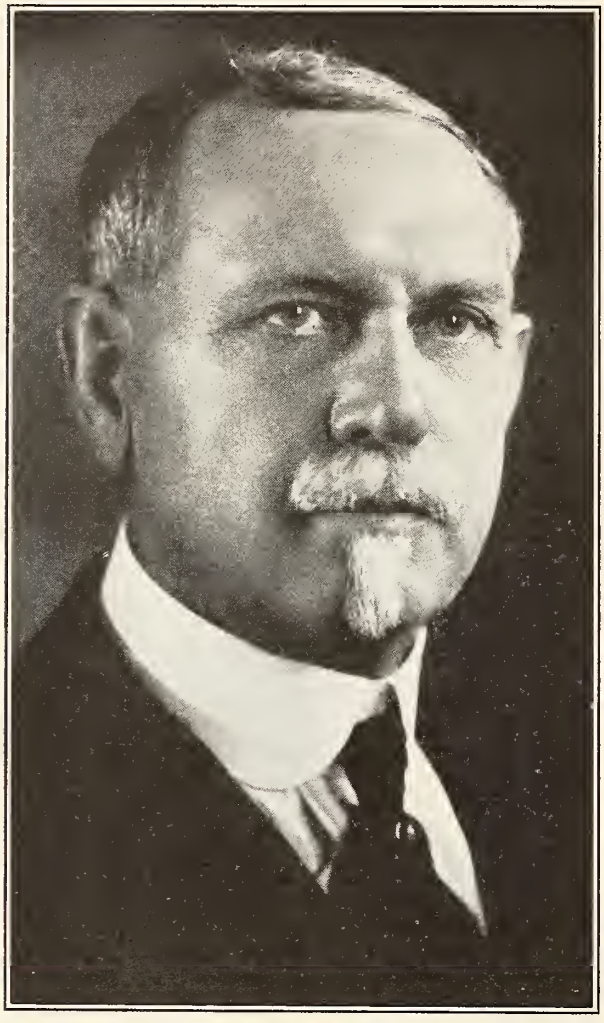
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Wives of members of the Pueblo County Medical Society were guests at a tea given at the Pueblo Golf and Country Club, Nov. 15, by officers of the Woman's Auxiliary of the Colorado State Medical Society.

The hostesses were: Mrs. F. M. Heller, president; Mrs. H. A. La Moure, recording secretary; Mrs. J. J. Pattee, corresponding secretary; Mrs. George M. Myers, treasurer, and Mrs. Harold T. Low, auditor.

Every time you mention Colorado Medicine to an advertiser or advertising prospect, you are doing yourself a favor, because you own Colorado Medicine.

Obituary



Isaac B. Perkins

Dr. Isaac B. Perkins, twenty-fifth president of the Colorado State Medical Society, died Nov. 7 at the age of 70. Dr. Perkins graduated in medicine from the Denver Medical College in 1886. He was an early graduate of one of the rapidly multiplying medical schools of Denver. He had a most pleasing personality. There was a smile, a word of cheer or a humorous story for every occasion. His stories acquired mirth from his own hilarious enjoyment of them. He was never critical of his fellows. His own energy carried him on. The way needed not to be cleared by destroying others.

Dr. Perkins was apt in the performance of surgical operations and was well adapted by nature to the trying work of the surgeon. He was always calm when the situation brought strain. No unexpected disaster could shake his placid nature or cause a tremor in his hand. His affable manner and his technical skill brought him a large following both lay and professional. At one time it may have been doubted if any other surgeon in Denver did more work. He wrote little. Method was more attractive to him than theory.

Late in life he met with more than one overwhelming financial disaster but he steadily refused to allow them to becloud his joyous spirit. There was need of wilful attention to the beautiful and merry aspects of life. He began writing verses which were as gay as a meadow in springtime. These verses served to support a cheerful outlook and he hoped they might be helpful to others as they had been to him.

Weakened by myocarditis, for a long time before his death he was not able to administer to the physical needs of his patients, but strengthened still by an unconquerable hope, he aspired to save them from the most distressing of human ailments—despondency. C. S. E.

Recent bulletins from the Council on Pharmacy and Chemistry of the American Medical Association announce the acceptance of the following new products:

Abbott Laboratories
Viosterol-Abbott.

Benzol Products Co.
Neocinchophen—B. P. C.

Dick X-Ray Co.
I-X Barium Meal

Parke, Davis & Co.
Parke, Davis & Co.'s Viosterol.

E. R. Squibb & Sons
Viosterol Squibb 100 D
Squibb's Viosterol Cod-Liver Oil 5 D
Squibb's Viosterol Cod-Liver Oil 5 D Mint-Flavored.

Terrell's Laboratories
Rabies Vaccine Phenolized, Terrell.

Abbott Laboratories
Abbott's Viosterol Cod Liver Oil

Ciba Co., Inc.
Atoquinol—Ciba
Vioform—Ciba.

Eli Lilly & Co.
Inhalant Ephedrine (Plain)—Lilly
Hypodermic Tablets Ephedrine Hydrochloride—Lilly, 0.016 Gm. (¼ Grain)
Hypodermic Tablets Ephedrine Hydrochloride—Lilly, 0.0325 Gm. (½ Grain)
Hypodermic Tablets Ephedrine Sulphate—Lilly, 0.016 Gm. (¼ Grain)
Hypodermic Tablets Ephedrine Sulphate—Lilly, 0.0325 Gm. (½ Grain)
Lilly's Ephedrine Jelly
Ointment Ephedrine Compound
Syrup No. 110 Ephedrine Sulphate
Syrup No. 111 Ephedrine Sulphate.

Mead Johnson & Co.
Mead's Powdered Lactic Acid Milk, Non-Curdling No. 1 with Dextrose.

Abbott Laboratories
Metaphen 2500.

Hollister-Stier Laboratories
Bacillus Acidophilus Culture—Hollister-Stier
Acne Vaccine
Pertussis Bacillus Vaccine
Typhoid-Paratyphoid Prophylactic
Staphylococcic Vaccine.

Mead Johnson & Co.
Sobee.

Sandoz Chemical Works, Inc.
Calcium Gluconate—Sandoz.

E. R. Squibb & Sons
Diphtheria Toxoid—Squibb, 33 cc. Vial.

Cutter Laboratory
Diphtheria Toxoid—Cutter.

Eli Lilly & Co.
Merthiolate.

Winthrop Chemical Co., Inc.
Luminal Capsules, 1½ Grains.

List of Members of the Colorado State Medical Society

December 1st, 1929

HONORARY MEMBERS

Richard C. Cabot, Cambridge, Mass.
Livingston Farrand, Ithaca, N. Y.
Lewis Linn McArthur, Chicago, Ill.
Chas.H. Mayo, Rochester, Minn.
C. K. Mills, Philadelphia, Pa.
Francis Ramaley, Boulder, Colo.
John Ridlow, Chicago, Ill.
William Robert Tyndale, Salt Lake City, Utah.
Victor C. Vaughan, Detroit, Mich.
L. B. Wilson, Rochester, Minn.

ASSOCIATE MEMBERS

(Honorary Members of Constituent Societies)

Name	Address	Constituent Society
E. C. Bennett	Boulder	Boulder
Col. Earl H. Bruns	Aurora	Denver
D. I. Christopher	Colorado Springs	El Paso
A. L. Fugard	Aurora	Denver
Lt. Col. Paul C. Hutton	San Francisco, Calif.	Denver
W. P. Hunnicut	Colorado Springs	Pueblo
Minnie C. T. Love	Denver	Denver
McLean, Luke	Pueblo	Pueblo
J. M. Phillips	Boulder	Boulder
*Robertson, Eugene H.	Boulder	Boulder
Rothwell, William J.	Murray, Utah	Denver
W. E. Shotwell	Denver	Denver
Stoddard, Thomas A.	Pueblo	Pueblo
O. W. Spicer	Colorado Springs	El Paso
C. F. Taylor	Pueblo	Pueblo
Hubert Work	Denver	Denver

ACTIVE MEMBERS

Name.	Post Office.	Constituent Society.
Abrums, H. E.	Trinidad	Las Animas
Adams, Bert Lee	Loveland	Larimer
Adams, O. F.	Trinidad	Las Animas
Adkinson, R. C.	Florence	Fremont
Albi, Michael	Trinidad	Las Animas
Albi, Rudolph	Denver	Denver
Alcorn, F. A.	Haxtum	Northeast
Alford, Jos. Savage	Crested Butte	Denver
Alldredge, H. H.	Englewood	Arapahoe
Allen, J. H.	Denver	Denver
Allen, K. D. A.	Denver	Denver
Allen, L. R.	Colorado Springs	El Paso
Allen, Phillip C. C.	Denver	Denver
Allen, Robert S.	Denver	Denver
Allen, W. P.	Greeley	Weld
Altieri, John A.	Denver	Denver
Ames, Matthew H.	Denver	Denver
Amesse, John W.	Denver	Denver
Anderson, A.	Ault	Weld
Anderson, C. W.	Denver	Denver
Anderson, Geo. M.	Cheyenne, Wyo.	Denver
Anderson, Sidney	Alamosa	San Luis
Anderson, T.	Denver	Denver
Andrew, John	Longmont	Boulder
Andrews, Geo. D.	Walsenburg	Huerfano
Andrus, Lester S.	Denver	Denver
Apperson, Ed L.	Denver	Denver
Arbini, Eva Anna	Denver	Denver
Argall, Albert J.	Denver	Denver
Arndt, Rudolph W.	Denver	Denver
Arneill, James R.	Denver	Denver
Ashbaugh, G. A.	Rocky Ford	Otero
Ashley, G. H.	Denver	Denver
Atcheson, Geo.	Denver	Denver
Atkinson, T. E.	Greeley	Weld
Attwood, A. D.	Denver	Denver
Aust, T. H.	Cedar Edge	Delta
Averill, H. W.	Evans	Weld
Baca, Jose F.	Walsenburg	Huerfano
Bacon, H. E.	Fort Collins	Larimer
Bagot, W. S.	Denver	Denver
Bailey, B. M.	Mt. Harris	Northwestern
Baird, Wm. J.	Boulder	Boulder
Baker, Andrew J.	Florence	Fremont
Baker, Fred R.	Colorado Springs	El Paso
Baker, Madaleine M.	Denver	Denver
Baker, W. T. H.	Pueblo	Pueblo
Bancroft, G. W.	Colorado Springs	El Paso
Bane, Wm. C.	Denver	Denver
Bane, W. M.	Denver	Denver
Barber, W. W.	Denver	Denver
Barnard, Hamilton I.	Denver	Denver
Barney, J. M.	Denver	Denver
Bartz, L. E.	Windsor	Weld
Baskin, Morris J.	Denver	Denver
Passow, Solomon H.	Denver	Denver
Bast, Lee	Delta	Delta
Bates, Mary E.	Denver	Denver
Baum, Harry L.	Denver	Denver
Beachley, John V.	Idaho Springs	Kit Carson
Beaghler, Amos L.	Denver	Denver
*Beall, K. W.	Denver	Denver
Beall, Walter C.	Denver	Denver
Beck, L. H.	Manitou	El Paso
*Beck, N. C.	Denver	Denver

Name.	Post Office.	Constituent Society.
Becker, F. E.	Denver	Denver
Becker, Henry J.	Sterling	Northeast
Bee, Archie	Canon City	Fremont
Beebe, Nathan L.	Fort Collins	Boulder
Beers, Ida V.	Denver	Denver
Beggs, Wm. N.	Denver	Denver
Bell, Claude Conley	Denver	Denver
Belrose, N. W.	Eaton	Weld
Bender, A. J.	Salida	Lake County
Benell, O. E.	Greeley	Weld
Bennett, C. J.	La Junta	Otero
Bennett, W. C.	La Junta	Otero
Bergen, Frank L.	Burlington	Kit Carson
Berlin, Wm. C. K.	Denver	Denver
Beroard, L. C. E.	Denver	Denver
Beshoar, Ben	Trinidad	Las Animas
Best, Thomas E.	Denver	Denver
Betts, F. A.	Wellington	Larimer
Beyer, T. E.	Denver	Denver
Bigelow, May T.	Denver	Denver
Bingham, W.J.	Denver	Denver
Birkenmayer, W. C.	Denver	Denver
Bishop, Frank D.	Denver	Denver
Bixler, C. W.	Erie	Boulder
Black, H. A.	Pueblo	Pueblo
Black, Melville	Denver	Denver
Black, W. C.	Denver	Denver
Blackerby, R. E.	Branson	Las Animas
Blackmer, F. J.	Steamboat Sp.	Northwestern
Blalock, J. R.	Pueblo	Pueblo
Blanchard, Winthrop	Denver	Denver
Blank, Henry	Denver	Denver
Blickensderfer, G. M.	Denver	Denver
Block, Leon	Denver	Denver
Blosser, J. R.	Denver	Denver
Blotz, B. B.	Rocky Ford	Otero
Blotz, B. F.	Rocky Ford	Otero
Bluemel, C. S.	Denver	Denver
Blumberg, A. M.	Denver	Denver
Boissevain, C. H.	Colorado Springs	El Paso
Bolton, L. C.	Cedar Edge	Delta
Bonesteel, A. E.	Denver	Denver
Bonham, C. D.	Boulder	Boulder
Bonney, S. G.	Denver	Denver
Bordner, Alta E.	Pueblo	Pueblo
Bortree, L. W.	Colorado Springs	El Paso
Bouslog, J. S.	Denver	Denver
Boyd, E. T.	Denver	Denver
Boyd, Geo. A.	Colorado Springs	El Paso
Braden, J. M.	Lafayette	Boulder
Brady, E. J.	Colorado Springs	El Paso
Bramley, J. R.	Denver	Denver
Brandenburg, H. P.	Denver	Denver
Brandon, E. Agnes	Denver	Denver
Brelsford, Guy	Wheatridge	Denver
Brethouwer, C. G.	Montrose	Montrose
Brinton, Wm. Thos.	Denver	Denver
Brobeck, Von Haller	Colorado Springs	El Paso
Broman, O. F.	Greeley	Weld
Bronfin, Isadore D.	Sanatorium	Denver
Brown, E. H.	Pueblo	Pueblo
Brown, H. C.	Denver	Denver
Brown, J. H.	Colorado Springs	El Paso
Brown, L. G.	Colorado Springs	El Paso
Brown, M. D.	Denver	Denver
Brown, Thad C.	Fort Collins	Larimer
Brownell, W. F.	Fort Collins	Larimer
Bryan, S. A.	Walsenburg	Crowley
Bryant, William A.	Dupont	Denver
Buchtel, F. C.	Denver	Denver
Buck, W. E.	Pueblo	Pueblo
Buikstra, C. R.	Silverton	San Juan
Bull, H. R.	Grand Junction	Mesa
Bumgarner, F. E.	Denver	Denver
Bundsen, C. A.	Denver	Denver
Burgin, Chas. H.	Delta	Delta
Burgin, Jim	Delta	Delta
Burket, R. S.	Denver	Denver
Burkhard, Ed D.	Pueblo	Pueblo
Burlingame, Robert	Denver	Denver
Burnett, A. L.	Durango	San Juan
Burnett, C. T.	Denver	Denver
Burnett, N. M.	Lamar	Prowers
Burns, T. M.	Denver	Denver
Bush, C. E.	Denver	Denver
Bush, J. H.	Boulder	Boulder
Bushell, Edward	Denver	Denver
Butman, W. W.	Denver	Denver
Butterfield, Olin J.	Denver	Denver
Cable, George Lewis	Denver	Denver
Caldwell, C. N.	Pueblo	Pueblo
Calkins, R. W.	Cortez	San Juan
Calonge, G. E.	La Junta	Otero
*Campbell, W. A.	Colorado Springs	El Paso
Campbell, W. A., Jr.	Colorado Springs	El Paso
Canby, H. S.	Denver	Denver
Carey, J. D.	Fort Collins	Larimer
Carmichael, E. K.	Center	San Luis
Carmichael, Paul W.	Trinidad	Las Animas
Carmody, T. E.	Denver	Denver
Carpenter, F. H.	Denver	Denver
Carpenter, R. Van	Englewood	Denver
Carson, B. G.	Englewood	Arapahoe
Carson, P. C.	Denver	Denver
*Cary, F. H.	Denver	Denver
Cary, G. C.	Grand Junction	Mesa
Casburn, F. E.	Holly	Prowers
Case, A. G.	Denver	Denver
Cassell, O. M.	Palisade	Mesa
Cassidy Lucius F.	Denver	Denver
Cattermole, C. A.	Denver	Denver
Cattermole, Geo. H.	Boulder	Boulder
Catterson, A. D.	Denver	Denver
Cavanagh, J. L.	Glenwood Springs	Garfield
Cecchini, A. S.	Denver	Denver
Chamberlain, R. S.	Denver	Denver
Chambers, J. C.	La Jara	San Luis
Chambers, Karl	Denver	Denver
Chandler, G. B.	Calhan	El Paso
Chapman, E. N.	Colorado Springs	El Paso
Chapman, S. J.	Colorado Springs	El Paso
Chapman, W. S.	Walsenburg	Huerfano
Charles, Robert L.	Denver	Denver
Chase, A. M.	Denver	Denver
Chase, John S.	Denver	Denver
Cheley, G. E.	Denver	Denver
Chesmore, H. P.	Delagua	El Paso
Childs, S. B.	Denver	Denver
Chisholm, A. J.	Denver	Denver
Chouke, Kehar Singh	Denver	Denver
Clagett, O. F.	Rifle	Garfield
Clark, I. J.	Fort Morgan	Denver
Cleland, W. S.	Delta	Delta
Close, T. Harland	Denver	Denver
Clyman, I.	Pueblo	Pueblo
Coakley, Harry Elmer	Denver	Denver
Cobianchi, Philip L.	Denver	Denver
Cochems, F. N.	Salida	Lake
Cochlan, J. T.	Colorado Springs	El Paso
Cohen, H. M.	Denver	Denver
Colby, H. E.	Holly	Prowers
Coleman, O. E.	Denver	Denver
Collins, E. W.	Denver	Denver
Conant, E. F.	Denver	Denver
Condit, Edwin G.	Erie	San Juan
Condon, C. E.	Leadville	Lake
Connell, J. E. A.	Denver	Denver
Connor, P. J.	Denver	Denver
Conway, L. A.	Colorado Springs	El Paso
Conyers, Chester A.	Denver	Denver
Cook, D. M.	Craig	Northwestern

Name.	Post Office.	Constituent Society.
Cook, Robert C.	Ft. Lyons	Denver
Cooke, Myron W.	Erie	Boulder
Cooper, C. E.	Denver	Denver
Cooper, Henry Lewis	Denver	Denver
Cooper, Henry S.	Denver	Denver
Cooper, Horace S.	Denver	Denver
Coover, D. H.	Denver	Denver
Copeland, W. C.	Hotchkiss	Delta
Corbin, Emmett A.	Eaton	Weld
Corlett, T. G.	Colorado Springs	El Paso
Cornell, H. M.	Dulce, N. M.	San Juan
Corper, H. J.	Denver	Denver
Corry, E. H.	Pueblo	Pueblo
*Corwin, R. W.	Pueblo	Pueblo
Costigan, Daniel D.	Trinidad	Las Animas
Craghead, W. S.	Denver	Denver
Craig, A. C.	Denver	Denver
Craig, James W.	Loveland	Larimer
Craig, Wm. B.	Denver	Denver
Craighead, J. W.	Pueblo	Pueblo
Cram, V. E.	Fort Collins	Larimer
Craney, J. P.	Denver	Denver
Crannell, Alvin E.	Louisville	Boulder
Crawford, A. H.	Lamar	Prowers
Crews, Geo. B.	Denver	Denver
Crisp, Wm. H.	Denver	Denver
Crook, W. W.	Glenwood Springs	Garfield
Crosby, L. G.	Denver	Denver
Crouch, J. B.	Colorado Springs	El Paso
Crysler, W. C.	Littleton	Arapahoe
Cunningham, A. A.	Denver	Denver
Cunningham, T. D.	Denver	Denver
Curfman, G. H.	Salida	Chaffee
Curtis, H. B.	Denver	Denver
Daniel, J. H.	Sterling	Northeast
Danielson, Ralph W.	Denver	Denver
Darling, J. C.	Durango	San Juan
Darrow, C. H.	Denver	Denver
Davenport, Robt. G.	Denver	Denver
Davis, A. C.	Lamar	Prowers
Davis, J. B.	Denver	Denver
Davis, Joseph W.	Aguilar	Las Animas
Davis, Jefferson W.	Denver	Denver
Davis, T. A.	Portland	Fremont
Davis, Wilbur L.	Denver	Denver
Davlin, C. A.	Alamosa	San Luis Valley
Day, A. L.	Craig	Northwestern
Day, H. S.	Grand Junction	Mesa
Day, R. J.	Alamosa	San Luis
Day, W. A.	Delta	Delta
Dean, E. F.	Denver	Denver
Dean, F. C.	Denver	Denver
DeBeque, W. A. E.	DeBeque	Denver
Delehanty, Ed	Denver	Denver
Denney, R. H.	Elbert	Denver
Dennis, F. L.	Colorado Springs	El Paso
Dennis, W. S.	Denver	Denver
DeWar, V. T.	Grand Junction	Mesa
Dewey, E. B.	Pasadena, Calif.	Denver
Diaz, R. C.	San Luis	San Luis Valley
Dickson, Logan M.	Denver	Denver
Dickson, Robert W.	Denver	Denver
Didrickson, F. G.	Montrose	Montrose
Dietmeier, H. R.	Longmont	Boulder
Dill, Richard D.	Arvada	Denver
Dobos, Emeric Imre	Denver	Denver
Dodge, Horace C.	Oteen, N. C.	Boulder
Dooley, W. P.	Akron	Morgan
Dorset, B. C.	Denver	Denver
Dorsey, Charles W.	Denver	Denver
Dorsey, G. H.	Denver	Denver
Doty, David Albert	Denver	Denver
Douglass, A. L.	Denver	Denver
Downing, E. D.	Woodman	El Paso
Downing, R. L.	Silverton	San Juan
Drea, Wm. Francis	Colorado Springs	El Paso

Name.	Post Office.	Constituent Society.
Dreyer, J. Henry	Denver	Denver
Drisdale, W. M.	Segunda	Las Animas
Drown, L. M.	Denver	Denver
Dumm, B. I.	Denver	Denver
Dunham, Jas. I.	Chama, N. M.	San Juan
Dunklee, Geo. K.	Denver	Denver
Dunlap, Florence M.	Denver	Denver
Dunlop, Josephine N.	Pueblo	Pueblo
Dutton, F. G.	Julesburg	Northeast
Dworak, Francis E.	Colorado Springs	El Paso
Dwyer, Paul K.	Alamosa	San Luis
Dyde, C. B.	Greeley	Weld
Dymenberg, N.	Minturn	Denver
Eakins, C. F.	Brush	Morgan
Earley, A. H.	Denver	Denver
Earp, J. Rosslyn	Denver	Denver
Earnest, C. E.	Ft. Collins	Larimer
Eastlake, Chesmore	Denver	Denver
Ebaugh, F. G.	Denver	Denver
Edson, C. E.	Denver	Denver
Edwards, G. M.	Denver	Denver
Ehrenburg, G. E.	Spivak	Denver
Elder, C. S.	Denver	Denver
Elliff, Edgar A.	Sterling	Northeast
Elliot, H. R.	Colorado Springs	El Paso
Elliott, J. T.	Denver	Denver
Elliott, L. E.	Colorado Springs	El Paso
Ellis, A. G.	Bangkok, Siam	El Paso
Elrick, Leroy	Denver	Denver
Emery, H. G.	Denver	Denver
Enfield, G. S.	Bedford, Pa.	Denver
Enos, Clinton	Denver	Denver
Epler, Crum	Pueblo	Pueblo
Erich, A. F.	Delta	Delta
Espey, J. G.	Trinidad	Las Animas
Espey, J. R.	Trinidad	Las Animas
Esserman, A. L.	Denver	Denver
Evans, C. H.	Colorado Springs	El Paso
Evans, F. J.	Denver	Denver
Evans, T. J.	Colorado Springs	El Paso
Eyerly, T. L.	Denver	Huerfano
Faber, Edwin G.	Denver	Denver
Fantz, T. S.	Denver	Denver
Farrington, F. H.	Boulder	Boulder
Farrington, Paul R.	Boulder	Boulder
Farthing, C. H.	Meeker	Garfield
Faust, F. A.	Colorado Springs	El Paso
Feder, J. M.	Peetz	Northeast
Fenton, W. C.	Rocky Ford	Otero
Fezer, Florence	Greeley	Weld
Filmer, B. A.	Denver	Denver
Finney, H. S.	Denver	Denver
Finney, R. H.	Pueblo	Pueblo
Finnoff, Wm. C.	Denver	Denver
Fischer, V. B.	Boulder	Boulder
Fisher, Carl D.	Denver	Denver
Fitzgerald, D. L.	Hartman	Prowers
Flaten, A. P.	Yuma	Morgan
Fleishman, Max	Spivak	Denver
Folsom, C. H.	Julesburg	Northeast
Fonda, J. W.	Longmont	Boulder
Forbes, R. P.	Denver	Denver
Ford, John E.	Grand Junction	Mesa
Forney, F. A.	Woodman	El Paso
Forster, A. M.	Colorado Springs	El Paso
Foster, J. M.	Denver	Denver
Foster, J. M., Jr.	Denver	Denver
Fowler, Harmon L.	Denver	Denver
Fowler, J. R.	Tioga	Huerfano
Fowler, Ora S.	Denver	Denver
Fox, James Shelton	Denver	Denver
Fox, M. R.	Sterling	Northeast
Frank, Lorenz W.	Denver	Denver
Frankle, B. B.	Denver	Denver
Fraser, M. Ethel V.	Denver	Denver
Fraser, R. W.	Denver	Denver

Name.	Post Office.	Constituent Society.
Freeland, H. J.	Denver	Denver
Freeman, Leonard	Denver	Denver
Freudenthal, A.	Trinidad	Las Animas
Friedman, Emanuel	Denver	Denver
Friedman, H. L.	Denver	Denver
Frosh, Henry B.	Denver	Denver
Fuller, C. R.	Salida	Chaffee
Fulwider, Robt. M.	Denver	Denver
Fuqua, J. W.	Greeley	Weld
Fuson, Carl C.	Milliken	Weld
Gafford, G. M.	Hugo	Denver
Gage, W. V.	Denver	Denver
Gaines, Joseph R.	Las Animas	Otero
Gale, M. Jean	Denver	Denver
Gallaher, T. J.	Denver	Denver
Gardiner, C. F.	Colorado Springs	El Paso
Gardner, G. C.	La Junta	Otero
Garvin, D. Edson	Golden	Denver
Garwood, H. G.	Denver	Denver
Gasser, W. P.	Fort Collins	Larimer
Gauss, Harry	Denver	Denver
Gengenbach, F. P.	Denver	Denver
George, McLeod M.	Denver	Denver
Geissinger, John D.	Pueblo	Pueblo
*Gibson, J. D.	Denver	Denver
Giese, C. O.	Colorado Springs	El Paso
Gilbert, G. B.	Colorado Springs	El Paso
Gilbert, O. M.	Boulder	Boulder
Gillaspie, Carbon	Boulder	Boulder
Gillen, G. H.	Denver	Denver
Gillett, O. R.	Colorado Springs	El Paso
Gilmore, G. B.	Colorado Springs	El Paso
Ginsburg, Hyman M	Denver	Denver
Gjellum, A. B.	Del Norte	San Luis
Gleason, R. L.	Fort Collins	Larimer
Glenn, George Alan	Denver	Denver
Goldhammer, Sam'l	Denver	Denver
Good, A. H.	Littleton	Denver
Good, Brooks D.	Colorado Springs	El Paso
Goodson, H. C.	Colorado Springs	El Paso
Gorman, W. Edward	Colorado Springs	El Paso
Gorsuch, John C.	Denver	Denver
Gothard, J. W.	Avondale	Pueblo
Gotthelf, I. L.	Saguache	San Luis Valley
Graf, Carl H.	Boulder	Boulder
Graham, Chas. A.	Denver	Denver
Graham, Donald A.	Denver	Denver
Graham, E. V.	Denver	Denver
Graham, R. F.	Greeley	Weld
Graves, C. H.	Canon City	Fremont
Graves, H. C.	Canon City	Fremont
Green, Berryman	Denver	Denver
Green, H. A.	Boulder	Boulder
Greene, Lawrence W.	Denver	Denver
Greig, Wm. M.	Denver	Denver
Groshart, O. D.	La Junta	Otero
Grover, B. B.	Colorado Springs	El Paso
Guthrie, Alice B.	Denver	Denver
Guthrie, Ewing C.	Denver	Denver
Gydesen, C. S.	Colorado Springs	El Paso
Hageman, S. V.	Las Animas	Otero
Haggart, John	Durango	San Juan
Haggart, W. W.	Denver	Denver
Hall, A. Z.	Eaton	Weld
Hall, Josiah N.	Denver	Denver
Halley, S. C.	Fort Collins	Larimer
Halley, W. H.	Denver	Denver
Halsted, F. S.	Denver	Denver
Ham, Judson B.	Denver	Denver
Hammil, John P.	Denver	Denver
Haney, J. R.	Colorado Springs	El Paso
Hanford, P. O.	Colorado Springs	El Paso
Hanson, K. K.	Grand Junction	Mesa
Hardesty, W. B.	Berthoud	Larimer
Hardy, James O.	Las Animas	Otero
Hargreaves, O. C.	Denver	Denver
Harmer, W. W.	Greeley	Weld
Harris, Allen H.	Denver	Denver
Harris, C. E.	Woodman	El Paso
*Hart, J. F.	Julesburg	Northeast
Hartley, J. E.	Denver	Denver
Hartshorn, Fred	Fort Collins	Larimer
Hartwell, John B.	Colorado Springs	El Paso
Harvey, Edward Lee	Denver	Denver
Harvey, Horace G.	Denver	Denver
Harvey, H. G., Jr.	Denver	Denver
Harvey, J. L.	Denver	Denver
Haskell, E. E.	Windsor	Weld
Hassenplug, Wm. F.	Cripple Creek	El Paso
Hawthorne, H. M.	Weldona	Morgan
Hayes, A. I.	Denver	Denver
Hays, W. E.	Sterling	Northeast
Hazlett, H. W.	Paonia	Delta
Hazlett, Joseph D.	Denver	Denver
Hegner, C. F.	Denver	Denver
Heller, Frederick M.	Pueblo	Pueblo
*Hepler, A. H.	Newcastle	Garfield
Henderson, H. B.	Denver	Denver
Hepp, G. Brinton	Denver	Denver
Hereford, J. H.	Colorado Springs	El Paso
*Herson, R. G.	Pueblo	Pueblo
Herriman, L. L.	Alamosa	San Luis Valley
Heusinkveld, Gerrit	Denver	Denver
Heuston, H. H.	Boulder	Boulder
Hick, L. A.	Delta	Delta
Hick, Lawrence L.	Delta	Delta
Hickey, Clinton G.	Denver	Denver
Hickey, H. L.	Denver	Denver
Hickman, W. E.	Wiley	Prowers
Higbee, O. F.	Fowler	Otero
Higbee, Daniel R.	Denver	Denver
Higgins, John W.	Denver	Denver
Hill, E. C.	Denver	Denver
Hill, H. C.	Holyoke	Northeast
Hill, Kenneth A.	Denver	Denver
Hill, Lawrence H.	Colorado Springs	El Paso
Hillkowitz, Philip	Denver	Denver
Hills, W. K.	Colorado Springs	El Paso
Hills, W. W.	Colorado Springs	El Paso
Hillyer, W. E.	Boulder	Boulder
Hinshaw, J. D.	Canon City	Fremont
Hipp, J. A.	Hot Springs, Ark.	Crowley
Holden, Eugene	Eaton	Weld
Holden, G. Walter	Denver	Denver
Holland, A. C.	Colorado Springs	El Paso
Holmes, R. E.	Canon City	Fremont
Honstein, C. E.	Fort Collins	Larimer
Hook, Merrit B.	Denver	Denver
Hopkins, G. A.	Glenwood Springs	Garfield
Hopkins, Guy H.	Pueblo	Pueblo
Hopkins, Hugh John	Denver	Denver
Hopkins, John R.	Denver	Denver
Hopkins, T. M.	Denver	Denver
Hotchkiss, Walter K.	Brighton	Denver
Hotopp, T. M. H.	Kirk	Morgan
Houf, W. H.	Iliff	Northeast
Howard, C. J.	Rutland, Mass.	Denver
Howard, J. F.	Denver	Denver
Howard, T. Leon	Denver	Denver
Howell, J. D.	Berthoud	Larimer
Howell, T. F.	Alamosa	San Luis
Howell, W. C.	Colorado Springs	El Paso
Hoyt, Ralph W.	Denver	Denver
Hudston, R.	Denver	Denver
Huelsmann, L. C.	Colorado Springs	El Paso
Hummel, E. P.	Sterling	Northeast
Humphrey, Fred A.	Fort Collins	Larimer
Hurley, J. R.	Antonito	San Luis
Hutchinson, Wm.	Pueblo	Pueblo
Hutchins, Leon	Ideal	Huerfano

Name.	Post Office.	Constituent Society.
Hutton, Jack G.	Denver	Denver
Hutton, V. A.	Florence	Fremont
Inglis, John	Denver	Denver
Ingraham, C. B.	Denver	Denver
Irwin, Robert S.	Denver	Denver
Jackson, B. F.	Pagosa Springs	San Juan
Jackson, Edward	Denver	Denver
Jackson, F. A.	Salida	Chaffee
Jaeger, Chas.	Denver	Denver
Jaeger, J. R.	Denver	Denver
Jaffa, B. B.	Denver	Denver
*Jayne, W. A.	Denver	Denver
Jeffery, J. E.	Ordway	Otero
Jelstrup, Gunnar	Denver	Denver
Jernigan, V. J.	Longmont	Boulder
Jeurink, V. J.	Littleton	Denver
Jobe, Merrill Collins	Denver	Denver
John, Grant H.	Englewood	Denver
Johns, E. W.	Fort Collins	Larimer
Johnson, E. E.	Cortez	San Juan
Johnson, Geo. S.	Denver	Denver
Johnson, Margaret	Boulder	Boulder
Johnston, R. S.	La Junta	Otero
Johnston, W. S	Pueblo	Pueblo
Jones, L. L.	Boulder	Boulder
Jones, S. Fosdick	Denver	Denver
Jones, Vera H.	Denver	Denver
Jones, Wm. W.	Denver	Denver
Joslyn, S. A.	Loveland	Larimer
Joy, Homer T.	Colorado Springs	El Paso
Katzman, Maurice	Denver	Denver
Keir, F. E.	La Junta	Otero
Keller, C. J.	Arriba	Kit Carson
Keller, W. C.	Genoa	Kit Carson
Kelsey, Otis H.	Denver	Denver
Kemble, Earl W.	Golden	Denver
Kemper, C. F.	Denver	Denver
Kennedy, Arthur L.	Denver	Denver
Kennedy, Geo. A.	Limon	Denver
Kenney, F. W.	Denver	Denver
Kent, Geo. B.	Denver	Denver
Kent, Wallace C.	Denver	Denver
Kern, B. F.	Platteville	Weld
Kettlekamp, Fred O.	Colorado Springs	El Paso
Kickland, W. A.	Fort Collins	Larimer
Killough, H. B.	Pueblo	Pueblo
Kincaid, W. R.	Lyons	Boulder
King, W. W.	Denver	Denver
Kinney, J. E.	Denver	Denver
Kinzie, J. W.	Haxtum	Northeast
Kleiner, Moses	Denver	Denver
Klopfenstein, F. C.	Boulder	Boulder
Knoch, N. H.	Denver	Denver
Knott, Isaiah	Montrose	Montrose
Knowles, E. W.	Greeley	Weld
Knowles, T. R.	Colorado Springs	El Paso
Knuckey, C. T.	Lamar	Prowers
Konwaler, B. E.	Spivak	Denver
Koplowitz, J. E.	Rico	Garfield
Kracaw, A. R.	Denver	Denver
Krajeski, S. S.	Denver	Denver
Kretschmer, Otto S.	Denver	Denver
Kroehler, R. A.	Pueblo	Pueblo
Krohn, M. J.	Denver	Denver
Krueger, E. H.	Denver	Denver
Kruse, May B.	Denver	Denver
Kunitomo, N.	Denver	Denver
Laff, Herman	Denver	Denver
Lamberton, Robt. F.	Denver	Denver
Lamme, J. M.	Walsenburg	Huerfano
Lamme, S. J.	Walsenburg	Huerfano
LaMoure, H. A.	Pueblo	Pueblo
Lane, Harold C.	Denver	Denver
Lang, Ray	Denver	Denver
Langdon, E. E.	Los Angeles, Calif.	Denver
Lannon, A. R.	Denver	Denver
Larimer, G. W.	Salida	Chaffee
Larson, J. H.	Wray	Mesa
Lassen, Fritz	Pueblo	Pueblo
Latta, C. J.	Sterling	Northeast
Laverty, Lucius F.	Denver	Denver
Lawson, J. A.	Rocky Ford	Otero
Leavitt, Byron C.	Millbrook, Mass.	Denver
Lee, George F.	Denver	Denver
Lee, G. H.	Denver	Denver
Lee, H. C.	Trinidad	Las Animas
Lee, L. W.	La Veta	Huerfano
Leeper, D. D.	Ault	Weld
LeFevre, H. W., Jr.	Denver	Denver
Lefurgey, H. C.	Dolores	San Juan
Lehan, J. W.	Greeley	Weld
LeRossignol, W. J.	Denver	Denver
Levin, O. S.	Chicago	Denver
Levine, S. J.	Grover	Weld
Levy, Maurice	Denver	Denver
Levy, Robt.	Denver	Denver
Lewis, G. B.	Denver	Denver
Lewis, Robert	Denver	Denver
Lewis, W. B.	Denver	Denver
Lewis, Walter H.	Hotchkiss	Delta
Lewis, William H.	Pueblo	Pueblo
Leyda, James H.	Denver	Denver
Libby, Geo. F.	Victoria, B. C.	Denver
Liddle, E. B.	Colorado Springs	El Paso
Likes, L. E.	Lamar	Prowers
Lilienthal, Samuel	Denver	Denver
Lincoln, C. L., Jr.	Denver	Denver
Lingenfelter, G. P.	Denver	Denver
Lingenfelter, H. A.	Durango	San Juan
Lipscomb, J. M.	Denver	Denver
Little, Lowell	Ft. Collins	Larimer
Little, W. T.	San Fernanda, Cal.	Fremont
Lockard, Lorenzo B.	Denver	Denver
Lockwood, C. E.	Montrose	Montrose
Lockwood, F. W.	Fort Morgan	Morgan
Löf, A. J. O.	Denver	Denver
Long, Margaret	Denver	Denver
Loomis, P. A.	Colorado Springs	El Paso
Lorber, M. B.	Denver	Denver
Lorimer, Hugh	Bennett	Denver
Love, Tracy R.	Denver	Denver
Low, H. T.	Pueblo	Pueblo
Lowe, Wilbur	Rockvale	Fremont
Lowen, Chas. J.	Denver	Denver
Lowther, R. R.	Denver	Denver
Luqueer, F. A.	Pueblo	Pueblo
Lusby, A. C.	Brush	Morgan
Lux, L. L.	Greeley	Weld
Lynch, E. B.	Canon City	Fremont
Mabree, Don R.	Alamo	Huerfano
Macomber, D. W.	Denver	Denver
Macomber, Geo. N.	Denver	Denver
Macomber, H. G.	Denver	Denver
Madden, J. H.	Colorado Springs	El Paso
Madler, N. A.	Greeley	Weld
Mahoney, J. J.	Colorado Springs	El Paso
Maier, Frank J.	Denver	Denver
Main, George C.	Denver	Denver
Male, J. T.	Yampa	Northwestern
Manns, Rudolph	Denver	Denver
Marbourg, E. M.	Colorado Springs	El Paso
Marcove, M. E.	Denver	Denver
Markel, Casper	Denver	Denver
Markley, Arthur J.	Denver	Denver
Marmaduke, C. V.	Pueblo	Pueblo
Martin, W. F.	Colorado Springs	El Paso
Mason, Lyman W.	Denver	Denver
Masten, A. R.	Wheatridge	Denver
Mathews, P. G.	Walsenburg	Huerfano
Matlack, J. A.	Longmont	Boulder
Matson, Wm. F.	Denver	Denver

Name.	Post Office.	Constituent Society.
*Matthews, B. H.	Denver	Denver
Maul, H. G.	Denver	Denver
Maul, R. F.	Denver	Denver
Maxwell, J. G.	Canon City	Fremont
Maynard, C. W.	Pueblo	Pueblo
Maynard, Donald E.	Durango	San Juan
McArthur, A. W.	Delta	Delta
McBride, W. L.	Sterling	Northeast
McCabe, F. H.	Lamar	Prowers
McCain, A. C.	Ault	Weld
McCarty, D. W.	Berthoud	Larimer
McCaw, J. A.	Denver	Denver
McClanahan, A. C.	Delta	Delta
McClanahan, R. K.	Colorado Springs	El Paso
McClanahan, Z. H.	Colorado Springs	El Paso
McClellan, M. A.	Aguilar	Las Animas
McClure, C. O.	Trinidad	Las Animas
McConnell, J. C.	Somerset	Delta
McConnell, J. F.	Colorado Springs	El Paso
McCorkle, H. B.	Colorado Springs	El Paso
McCrossin, W. P., Jr.	Colorado Springs	El Paso
McDonald, F. J.	Leadville	Lake
*McDonald, R. J.	Leadville	Lake
McDonald, R. J., Jr.	Denver	Denver
McDonnell, J. J.	Pueblo	Pueblo
McDonough, J. P.	Gunnison	Chaffee
McFadden, J. G.	Loveland	Larimer
McGill, Earl D.	Kansas City, Mo.	Denver
McGovern, B. E.	Colorado Springs	El Paso
McGraw, H. R.	Denver	Denver
McHugh, P. J.	Fort Collins	Larimer
McIntyre, T. A.	Colorado Springs	El Paso
McKay, J. H.	Denver	Denver
McKeen, H. R.	Denver	Denver
McKelvey, S. R.	Denver	Denver
McKeown, E. E.	Denver	Denver
McKibben, S.	Creede	San Luis Valley
McKinnie, L. H.	Colorado Springs	El Paso
McLauthlin, C. A.	Denver	Denver
McLauthlin, H. W.	Denver	Denver
McNaught, F. H.	Denver	Denver
Mead, Ella A.	Greeley	Weld
Meade, E. E.	Denver	Denver
Meader, Chas. N.	Denver	Denver
Means, F. M.	Holyoke	Northeast
Menkel, H. C.	Simla, India	Denver
Menser, Bert	Denver	Denver
Merriman, Amherst	Pueblo	Pueblo
Metcalf, A. W.	Denver	Denver
Metz, C. W.	Denver	Denver
Miel, Geo. W.	Denver	Denver
Miles, Amy B.	Boulder	Boulder
Miles, M. E.	Boulder	Boulder
Miller, A. E.	Delta	Delta
Miller, A. H.	Denver	Denver
Miller, Eli A.	Denver	Denver
Miller, L. A.	Colorado Springs	El Paso
Miller, L. I.	Denver	Denver
Miller, R. B.	Louisville	Boulder
Miller, Samuel W.	Denver	Denver
Miller, Simon I.	Denver	Denver
Mills, F. M.	Denver	Denver
Minner, M. G.	Denver	Denver
Minnig, Arnold	Denver	Denver
Mitchell, D. M.	La Salle	Weld
Mitchell, J. C.	Denver	Denver
Mitchell, L. R.	Eads	Prowers
Mitchell, Wm. C.	Denver	Denver
Mix, Walter S.	Denver	Denver
Mogan, W. E.	Denver	Denver
Moleen, G. A.	Denver	Denver
Monaghan, D. G.	Denver	Denver
Monismith, A. F.	Fort Lupton	Weld
Monson, G. L.	Denver	Denver
Montgomery, D. H.	Holyoke	Northeast
Mooney, W. E.	Haxtum	Northeast
*Moore, A. M.	Denver	Denver
Moore, F. R.	Florence	Fremont
Moore, G. C.	Littleton	Arapahoe
Moore, J. W.	Denver	Denver
Morehouse, J. A.	Sterling	Northeast
Morgan, J. W.	Denver	Denver
Morian, C. H.	Denver	Denver
Morning, J. F.	Denver	Denver
Morrill, E. L.	Fort Collins	Larimer
Morrison, C. S.	Colorado Springs	El Paso
Morrison, R. G.	Denver	Denver
Morrow, E. L.	Oak Creek	Northwestern
Morse, C. E.	La Junta	Otero
Mudd, W. G.	Long Beach, Cal.	Denver
Muenzinger, F. R. W.	Boulder	Boulder
Mugrage, E. R.	Denver	Denver
Mumey, Nolie	Denver	Denver
Munro, E. H.	Grand Junction	Mesa
Murphey, Bradford J.	Colorado Springs	El Paso
Murphy, Rex L.	Denver	Denver
Myers, G. M.	Pueblo	Pueblo
Myers, J. T.	Hotchkiss	Delta
Naugle, J. E.	Sterling	Northeast
Neeper, E. R.	Colorado Springs	El Paso
Nelson, Eli	Sanatorium	Denver
Nelson, G. E.	Windsor	Weld
Nelson, Harry H.	Simla	Denver
Nelson, Samuel	Pueblo	Pueblo
Ness, Ragnar J.	Denver	Denver
Newburn, W. L.	Trinidad	Las Animas
Newcomer, Elizabeth	Denver	Denver
Newcomer, N. B.	Denver	Denver
Newland, C. A.	Springfield	Prowers
Newsom, H. G.	Denver	Denver
Nicoletti, Frank	Pueblo	Pueblo
Nilsson, J. P.	Boulder	Boulder
Noonan, G. M.	Walsenburg	Huerfano
Nossaman, A. J.	Pagosa Springs	San Juan
O'Byrne, Geo. T.	La Junta	Otero
*O'Connor, J. W.	Denver	Denver
Ogilbee, H. M.	Manitou	El Paso
Ohmart, W. A.	Denver	Denver
Olmsted, G. K.	Denver	Denver
Olson, D. G.	New Raymer	Weld
Oppenheim, S. M.	Denver	Denver
O'Rourke, D. H.	Denver	Denver
Orr, Jas. S.	Fruita	Mesa
Orrick, G. W.	Fort Collins	Larimer
Orsborn, G. E.	Denver	Denver
Owens, R. L.	Colorado Springs	El Paso
Packard, Geo. B., Jr.	Denver	Denver
Packard, Robt. G.	Denver	Denver
Palmer, Donald A.	Spokane	Denver
Palmer, F. E.	Sterling	Northeast
Palmer, W. A.	Castle Rock	Denver
Parker, H. M.	Sedgwick	Denver
Parker, O. T.	Salida	Chaffee
Parker, Thadd	Morley	San Luis Valley
Pate, C. E.	Denver	Denver
Pattee, J. J.	Pueblo	Pueblo
Patterson, J. A.	Colorado Springs	El Paso
Patterson, R. F.	Springfield	Prowers
Patterson, W. O.	Pueblo	Pueblo
Peck, G. S.	Denver	Denver
Pecony, Jos. W.	Denver	Denver
Peirce, F. J.	Pueblo	Pueblo
Perkins, C. C.	Denver	Denver
Perkins, Earl James	Denver	Denver
Perrott, E. W., Jr.	Denver	Denver
Pershing, C. L.	Denver	Denver
Pershing, H. T.	Denver	Denver
Peterson, Edgar A.	Denver	Denver
Peterson, E. H.	Grand Junction	Mesa
Phillips, S. G.	Denver	Denver
Philpott, J. A.	Denver	Denver

Name.	Post Office.	Constituent Society.
Philpott, O. S.	Denver	Denver
Pipkin, G. P.	Pueblo	Pueblo
Pitney, Orville	Cheraw	Otero
Plank, Joseph R.	Denver	Denver
Platz, C. H.	Fort Collins	Larimer
Plaugher, Lee Roy	Gilman	Garfield
Plumb, Carl W.	Grand Junction	Mesa
Pollard, J. W.	Denver	Denver
Pollock, C. R.	Denver	Denver
Porter, R. B.	Glenwood Springs	Garfield
Porter, V. W.	Lafayette	Boulder
Pothnisje, P. J.	Denver	Denver
Powell, Cuthbert	Denver	Denver
Powell, Henry M.	Colorado Springs	El Paso
Pratt, Elsie S.	Denver	Denver
Prey, Duval	Denver	Denver
Price, Ligon	Denver	Denver
Price, R. C.	Denver	Denver
Prien, O. L.	Denver	Denver
Prinzing, J. F.	Denver	Denver
Prior, Frank H.	Colorado Springs	El Paso
Pugh, C. J.	Saguache	San Luis
Purcell, James W.	Denver	Denver
Queal, E. B.	Boulder	Boulder
Ramsey, R. T.	Denver	Denver
Ranger, L. H.	Colorado Springs	El Paso
Raring, L. M.	Denver	Denver
Raymond, E. I.	Wellington	Larimer
Redd, Rufus K.	Pueblo	Pueblo
Reed, C. W.	Grand Junction	Mesa
Reed, Marvin W.	Denver	Denver
*Reed, Walter W.	Boulder	Boulder
Reed, W. K.	Boulder	Boulder
Rees, Maurice	Denver	Denver
Reid, Henry S.	Palm Spgs., Calif.	Denver
Reilly, Joseph John	San Diego, Calif.	Denver
Rensch, Otto B.	Silverton	San Juan
Rice, Geo. Ernest	Pueblo	Pueblo
Rich, W. F.	Pueblo	Pueblo
Richards, D. F.	Denver	Denver
Richardson, H. L.	Washington, D. C.	El Paso
Richie, L. T.	Trinidad	Las Animas
Richmond, C. E.	Colorado Springs	El Paso
Rilance, Chas. D.	Denver	Denver
Ringle, C. A.	Greeley	Weld
Ritterspach, F. J.	Brighton	Denver
Robb, F. C.	Denver	Denver
Robb, Guel G.	Denver	Denver
Robb, Wm. J.	Denver	Denver
Robe, R. C.	Pueblo	Pueblo
*Roberts, J. O.	Denver	Denver
Roberts, W.	Monte Vista	Denver
Roberts, Wm. J.	Minneapolis, Minn.	Denver
Robbins, A. W.	Utah	San Juan
*Robertson, E. H.	Boulder	Boulder
Robinovitch, Louise G.	Golden	Denver
Robinson, E. F.	Denver	Denver
Robinson, Jas. M.	Denver	Denver
Roe, John F.	Denver	Denver
Rogers, F. E.	Denver	Denver
Root, M. R.	Denver	Denver
Rothrock, F. B.	Colorado Springs	El Paso
Rothwell, W. D.	Denver	Denver
Ruddy, James	Denver	Denver
Ruegnitz, L. H.	Denver	Denver
Rummell, R. J.	Lamar	Prowers
Rupert, J. K.	Alamosa	San Luis
Rupert, L. E.	Florence	Fremont
Rusk, H. S.	Pueblo	Pueblo
Russell, James E., Jr.	Denver	Denver
Ryan, J. G.	Denver	Denver
Ryder, Charles	Colorado Springs	El Paso
Safarik, L. R.	Denver	Denver
Salisbury, E. I.	Marion, Ohio	Denver
Salsbury, C. R.	Pueblo	Pueblo
Sams, Louis V.	Denver	Denver
Sands, G. M.	Rifle	Garfield
Schachet, Reuben	Denver	Denver
Schaefer, S. W.	Colorado Springs	El Paso
Schermerhorn, F.	Montrose	Montrose
Scherrer, E. A.	Denver	Denver
Schoen, W. A.	Greeley	Weld
Schroeder, R. H.	Denver	Denver
Schultz, H. H.	Woodman	El Paso
Schoonover, John A.	Denver	Denver
Schwatt, Herman	Denver	Denver
Schwer, Carl	Denver	Denver
Schwer, J. L.	Pueblo	Pueblo
Scott, John T.	Cragmor	Denver
Sears, Thad P.	Denver	Denver
Sedwick, Wm. A.	Denver	Denver
Seebass, A. R.	Denver	Denver
Seecof, D. P.	Denver	Denver
Sells, Virgil E.	Denver	Denver
Senger, Wm.	Pueblo	Pueblo
Sevier, Charles E.	Denver	Denver
Sevier, J. A.	Colorado Springs	El Paso
Sewall, Henry	Denver	Denver
Shafer, Harry S.	Denver	Denver
Shaffer, E. G.	Delta	Delta
*Sharpley, W. H.	Denver	Denver
Shea, R. M.	Denver	Denver
Shelton, E. K.	Hollywood	San Luis
Sherman, E. M.	Holly	Prowers
Shields, J. M.	Denver	Denver
Shippey, O. P.	Saguache	San Luis Valley
Shivers, M. O.	Colorado Springs	El Paso
Shollenberger, C. F.	Denver	Denver
Shopshire, J. W.	Pueblo	Pueblo
Shoun, D. A.	Canon City	Fremont
Sickenberger, J. U.	Grand Junction	Mesa
Sidwell, C. E.	Longmont	Boulder
Simon, John	Englewood	Arapahoe
Simon, Saling	Denver	Denver
Sims, H. J.	Littleton	Arapahoe
Singer, W. F.	Pueblo	Pueblo
Skinner, M. G.	Washington, D. C.	Denver
Sloan, W. W.	Mt. Harris	Northwestern
Smith, A. E.	Craig	Denver
Smith, C. A.	Monte Vista	San Luis Valley
Smith, Chas. D.	Kline	San Juan
Smith, Fisher Elmus	Denver	Denver
Smith, H. A.	Long Beach, Calif.	Delta
Smith, R. G.	Denver	Denver
Smith, W. A.	Colorado Springs	El Paso
Snair, W. L.	Louisville	Boulder
Snedec, J. F.	Pueblo	Pueblo
Snyder, H. W.	Denver	Denver
Soland, Louis W.	Denver	Denver
Sommer, Henry O.	Denver	Denver
Sorensen, George	La Junta	Otero
Spangleberger, M. A.	Denver	Denver
Spaulding, W. F.	Greeley	Weld
Speck, Richard T.	McPhee	San Juan
Spencer, F. R.	Boulder	Boulder
Spicer, Chas. M.	Denver	Denver
Spitzer, W. M.	Denver	Denver
Spring, John A.	Montrose	Montrose
Staeck, Felix	Denver	Denver
Stahl, Arthur W.	Denver	Denver
Stains, Minnie E.	Colorado Springs	El Paso
Stander, T. C.	Denver	Denver
Stanley, A. F.	Rouse	Huerfano
Staunton, A. G.	Denver	Denver
Stein, H. B.	Denver	Denver
Steinberg, B. M.	Denver	Denver
Steinhardt, E. H.	Pueblo	Pueblo
Stemen, W. E.	Detroit, Mich.	Denver
Stephenson, F. B.	Denver	Denver
Stevens, F. T.	Colorado Springs	El Paso

Name.	Post Office.	Constituent Society.
Stevens, John L.	New Castle	Garfield
Stewart, M. J.	Denver	Larimer
Stickles, Albert	La Junta	Otero
Stiles, Geo. Whitfield	Denver	Denver
Stong, Elliott S.	Grand Junction	Mesa
Stough, C. F.	Colorado Springs	El Paso
Stratton, Mary R.	Denver	Denver
Streamer, C. W.	Pueblo	Pueblo
Strickler, D. A.	Denver	Denver
Strong, J. C.	Leadville	Lake
Strong, Judd	Pueblo	Pueblo
Struthers, J. E.	Denver	Denver
Stubbs, A. L.	La Junta	Otero
Stubbs, J. E.	La Junta	Otero
Stuver, H. W.	Denver	Denver
Sunderland, O. R.	Edgewater	Denver
Sunderland, W. E.	Denver	Denver
Swan, W. H.	Colorado Springs	El Paso
Swaggart, L. B.	Denver	Denver
Swenson, R. T.	Aguilar	Las Animas
Swerdfeger, E. B.	Denver	Denver
Taussig, A. S.	Denver	Denver
Taylor, A. G.	Grand Junction	Mesa
Taylor, Edward E.	Denver	Denver
Taylor, H. L.	Denver	Denver
Taylor, R. R.	Pueblo	Pueblo
Taylor, Roscoe	Monte Vista	San Luis
Taylor, T. C.	Fort Collins	Larimer
Tennant, C. E.	Denver	Denver
Tepley, L. V.	Denver	Denver
Thayer, M. D.	Denver	Denver
Thomas, Atha	Denver	Denver
Thompson, C. W.	Pasadena, Calif.	Pueblo
Thompson, David	Denver	Denver
Thompson, D. G.	Trinidad	Las Animas
Thompson, J. W.	Pueblo	Pueblo
Thompson, Lester E.	Pueblo	Pueblo
Thompson, Lewis N.	Granada	Prowers
Thompson, N. A.	Denver	Denver
Thompson, W. E.	Greeley	Weld
Thulin, H. F.	Denver	Denver
Thygeson, Phillips	Denver	Denver
Tidd, C. H.	Telluride	Delta
Timmons, E. L.	Colorado Springs	El Paso
Tirador, P. A.	Pueblo	Pueblo
Tower, F. A.	Denver	Denver
Townsend, Guy W.	Denver	Denver
Triplett, T. A.	Denver	Denver
Tripp, Clifford I.	Sterling	Northeast
Trotter, Jay R.	Mancos	San Juan
Troute, F. R.	Englewood	Denver
Trueblood, Chas.	Monte Vista	San Luis Valley
Trumbauer, C. A.	Denver	Denver
Tubbs, W. R.	Carbondale	Garfield
Tucker, Beverley	Colorado Springs	El Paso
Turrell, H. C.	Durango	San Juan
Twining, W. H.	Aspen	Garfield
Uji, Shigenatsu	Denver	Denver
Ulmer, H. D.	Denver	Denver
Unfug, G. A.	Pueblo	Pueblo
Vail, William H.	Denver	Denver
Vanderhoof, D. A.	Colorado Springs	El Paso
VanDerSchow, G. E.	Fowler	Otero
Van Landegham, F. P	Kersey	Weld
Van Meter, L. M.	Denver	Denver
Van Meter, S. D.	Denver	Denver
VanMeter, Virginia C.	Denver	Denver
Van Stone, L. M.	Denver	Denver
Van Stone, W. D.	Denver	Denver
Van Zant, C. B.	Denver	Denver
Verity, W. P.	Two Buttes	Prowers
Vogt, H. J.	Pueblo	Pueblo
Von Detten, H. J.	Denver	Denver
Vroom, J. N.	Denver	Denver
Wade, L. H.	Denver	Denver
Waggener, W. R.	Denver	Denver
Walker, C. E.	Denver	Denver
Wallace, G. C.	Denver	Denver
Walsh, H. T.	Antonito	San Luis
Walters, B. F.	Durango	San Juan
Walton, James B.	Denver	Denver
Waring, J. J.	Denver	Denver
Ward, Lester	Pueblo	Pueblo
*Warder, William S.	Boulder	Boulder
Warner, G. R.	Denver	Denver
Waroshill, Alex.	Chandler	Pueblo
Wasson, W. W.	Denver	Denver
Waters, P. A.	Denver	Denver
Watson, W. V.	Plateau City	Mesa
Wear, H. H.	Denver	Denver
Weatherford, J. E.	Denver	Denver
Weaver, John	Greeley	Weld
Webb, E. C.	Canon City	Fremont
Webb, G. B.	Colorado Springs	El Paso
*Weddell, J. N.	De Beque	Garfield
Wedgewood, Paul E.	San Diego, Calif.	Denver
Weiler, R. D.	Del Norte	San Luis
Weiner, M.	Denver	Denver
Weinfeld, Samuel	Denver	Denver
Weiss, F. H.	Denver	Denver
West, T. J.	Pasadena, Calif.	Denver
Wetherill, H. G.	Monterey, Calif.	Denver
Whitaker, H. L.	Denver	Denver
Whitaker, W. O.	Denver	Denver
White, H. T.	Denver	Denver
White, H. W.	Fruita	Mesa
White, J. W.	Pueblo	Pueblo
White, W. J.	Longmont	Boulder
Whitehead, R. W.	Cleveland, Ohio	Denver
Whiteley, P. W.	Denver	Denver
Whitney, H. B.	Denver	Denver
Whittaker, D. L.	Hayden	Northwestern
Wiest, Newton	Denver	Denver
Wilcox, H. W.	Denver	Denver
Wilcox, Sarah C.	Denver	Denver
Wilkinson, W. L.	La Salle	Weld
Willett, F. E.	Steamboat Springs	Northwestern
Williams, A. F.	Fort Morgan	Morgan
Williams, A. H.	Denver	Denver
Williams, G. S.	Lamar	Prowers
Williams, H. L.	Flagler	Kit Carson
Williams, Judson	Colorado Springs	El Paso
Williams, N. C.	Denver	Denver
Williams, S.	Denver	Denver
Williams, W. W.	Denver	Denver
Williamson, A. R.	Pueblo	Pueblo
Willis, C. H.	Denver	Denver
Wilson, R. E.	Denver	Denver
Winemiller, L. H.	Denver	Denver
Winningham, John J.	Olathe	Montrose
Winston, A. L.	Colorado Springs	El Paso
Winternitz, David	Colorado Springs	El Paso
Wise, O. C.	Pueblo	Pueblo
Withers, Sanford	Denver	Denver
Wolf, J. A.	Denver	Denver
Wolf, John G.	Pueblo	Pueblo
Wolfe, R. E.	Rocky Ford	Otero
Wollenweber, L. C.	Denver	Denver
Wooley, Lawrence F.	Denver	Denver
Woodbridge, J. H.	Pueblo	Pueblo
Woodcock, B.	Greeley	Weld
Woodcock, W. C.	Denver	Denver
Woods, W. P.	Longmont	Boulder
Woodward, Harry	Colorado Springs	El Paso
Work, Philip	Denver	Denver
Workman, Cloyd W.	Denver	Denver
Worth, C. M.	Denver	Denver

Name.	Post Office	Constituent Society.
Worthington, A. K.	Denver	Denver
Wright, G. M.	Denver	Denver
Wright, R. E.	Loveland	Larimer
Wyatt, Kon	Canon City	Fremont
Yaker, D. M.	Denver	Denver
Yegge, W. B.	Denver	Denver
Yont, Kate	Denver	Denver
Young, H. B.	Denver	Denver
Zarit, John	Denver	Denver
Zillman, O. E.	Manzanola	Otero
Zimmerman, F. H.	Pueblo	Pueblo
Zimmerman, Wm.	Denver	Denver

*Deceased.

Note: Due to the transfer of records and change from the former secretarial system to the executive secretaryship, it is probable that a few errors have crept into the above membership list. The executive secretary will appreciate notice of any such errors, particularly should any member's name be omitted.

THE COLORADO STATE MEDICAL SOCIETY

OFFICERS, 1929-1930

President, William Senger, Pueblo.

President-elect, W. A. Kickland, Fort Collins.

Vice-Presidents, 1st, John B. Crouch, Colorado Springs; 2nd, Burgett Woodcock, Greeley; 3rd, Charles E. Condon, Leadville; 4th, E. H. Munro, Grand Junction.

Secretary, F. B. Stephenson, Denver.

Executive Secretary, Mr. Harvey T. Sethman, 466 Metropolitan bldg., Denver; telephone KEystone 0870.

Treasurer, L. W. Bortree, Colorado Springs.

Delegates to the American Medical Association: Senior, J. W. Amesse, Denver, term expires 1930; Alternate, L. H. McKinnie, Colorado Springs, term expires 1930; Junior, John R. Espey, Trinidad, term expires 1931; Alternate, J. J. Waring, Denver, term expires 1931.

Councilors:		Term expires
District 1.	Ella A. Mead, Greeley	1930
District 2.	G. P. Lingenfelter, Denver	1934
District 3.	Geo. D. Andrews, Walsenburg	1933
District 4.	W. W. Crook, Glenwood Springs	1931
District 5.	A. J. Nossaman, Pagosa Springs	1932

Constituent Societies, Times of Meeting, 1929 Secretaries

Arapahoe County—Last Monday of each month; secretary, B. G. Carson, Englewood.

Boulder County—Second Thursday; secretary, Margaret Johnson, Boulder.

Chaffee County—First Tuesday of each month; secretary, G. W. Larimer, Salida.

Crowley County—Second Tuesday of each month; secretary, J. A. Hipp, Olney Springs.

Delta County—Last Friday of each month; secretary, Lawrence L. Hicks, Delta.

Denver County—First and third Tuesday of each month; secretary, C. H. Darrow.

El Paso County—Second Wednesday of each month; Secy., W. A. Campbell, Jr., Colo. Springs.

Fremont County—Fourth Monday of each month; secretary, R. Adkinson, Florence.

Garfield County—Last Thursday of each month; secretary, R. B. Porter, Glenwood Springs, Colo.

Huerfano County—Third Thursday of each month; secretary, J. M. Lamme, Walsenburg, Colo.

Kit Carson County—Quarterly, first Monday of December, March, June and September; secretary, Wm. L. McBride, Seibert, Colo.

Lake County—First Thursday of each month; secretary, J. C. Strong, Leadville.

Larimer County—First Wednesday of each month; secretary, Lowell Little, Fort Collins.

Las Animas County—First Friday of each month; secretary, M. C. Albi, Trinidad.

Mesa County—First Tuesday of each month; secretary, A. G. Taylor, Grand Junction.

Montrose County—First Thursday of each month; secretary, F. G. Didrickson, Montrose.

Morgan County—Last Monday of each month; secretary, E. R. Johnson, Fort Morgan.

Northeast Colorado—Second Thursday in each month; secretary, E. P. Hummel, Sterling.

Northwestern Colorado—Second Thursday of each month; secretary, F. J. Blackmer, Steamboat Springs.

Otero County—Second Thursday of each month; secretary, G. C. Gardner, La Junta.

Prowers County—First Tuesday of each quarter; secretary, Geo. S. Williams, Lamar, Colo.

Pueblo County—First and third Tuesday of each month; secretary, Amherst Merriman, Pueblo.

San Juan Medical—Second Saturday, January, April, July and October; secretary, H. A. Lingenfelter, Durango.

San Luis Valley—Fifteenth of each month; secretary, Sidney Anderson, Alamosa.

Weld County—First Monday of each month; secretary, Florence Fezer, Greeley, Colo.

COMMITTEES FOR 1929

Committee on Scientific Work: Maurice H. Rees, chairman, Denver; Crum Epler, Pueblo; C. Gillaspie, Boulder.

Committee on Credentials: F. B. Stephenson, chairman, Denver; John P. McDonough, Gunnison; C. A. Davlin, Alamosa.

Committee on Public Policy: W. H. Halley, chairman, Denver; Chas. N. Meader, Denver; C. F. Kemper, Denver; Harry S. Finney, Denver; L. H. McKinnie, Colorado Springs; L. E. Likes, Lamar; N. A. Madler, Greeley.

Committee on Publication: C. S. Bluemel, chairman, Denver; Wm. H. Crisp, Denver; George A. Moleen, Denver.

Committee on Auditing: E. D. Downing, chairman, Woodmen; George H. Noonan, Walsenburg; Edward P. Hummel, Sterling.

Committee on Necrology: C. S. Elder, chairman, Denver; G. C. Cary, Grand Junction; Lee T. Richie, Trinidad.

Committee on Medical Education: Edward Jackson, chairman, Denver; W. B. Yegge, Denver; O. M. Gilbert, Boulder.

Committee on Arrangements: Frederic Singer, chairman, Pueblo; R. H. Finney, Pueblo; Harold T. Low, Pueblo; George E. Rice, Pueblo.

Committee on Social Medicine: B. B. Jaffa, chairman, Denver; W. B. Hardesty, Berthoud; George H. Curfman, Salida.

Committee on Medical Literature: W. C. Finnoff, chairman, Denver; A. J. Markley, Denver, Gerald B. Webb, Colorado Springs.

Committee on Hospitals: Peter O. Hanford, chairman, Colorado Springs; R. W. Arndt, Denver; R. P. Forbes, Denver.

Committee on Military Affairs: George P. Lingenfelter, chairman, Denver; Paul M. Ireland, Pueblo.

Committee on Mental Hygiene: F. G. Ebaugh, chairman, Denver; C. S. Bluemel, Denver; Frank H. Zimmerman, Pueblo; Philip Work, Denver; H. A. La Moure, Pueblo; Frank T. Stevens, Colorado Springs.

Committee on Periodic Health Examinations: C. E. Harris, chairman, Woodmen; F. M. Heller, Pueblo; Lowell B. Little, Fort Collins.

Committee on Cooperation with State Pharmacal Association: A. M. Forster, chairman, Colorado Springs; M. C. Albi, Trinidad; Frank J. Blackmer, Steamboat Springs.

Committee on Cost of Medical Care: Maurice H. Rees, chairman, Denver; S. B. Childs, Denver; J. J. Waring, Denver; John B. Hartwell, Colorado Springs; George H. Curfman, Salida.

Committee on Industrial Commission Fees: William Senger, chairman ex-officio, Pueblo; Harold T. Low, Pueblo; John R. Espey, Trinidad; H. G. Garwood, Denver; Crum Epler, Pueblo; William H. Halley, Denver.

Committee on Finance: C. F. Hegner, chairman, Denver; H. R. McKeen, Denver; L. W. Bortree, Colorado Springs.

Curator of Exhibits: E. D. Downing, Woodmen.

Committee on Golf Tournament: H. T. Low, chairman, Pueblo; J. W. Thompson, Pueblo; F. F. Snedec, Pueblo.

WYOMING SECTION

President, C. W. Jeffrey, Rawlins — First Vice President, R. H. Sanders, Superior
President-Elect, E. L. Jewell, Shoshoni
Secretary, Earl Whedon, Sheridan — Treasurer, Evald Olson, Lovell
Delegate to the A. M. A., Geo. P. Johnston, Cheyenne — Alternate, J. H. Holland, Evanston
Councilors: C. Y. Beard, Cheyenne — H. L. Harvey, Casper — J. H. Goodnough, Rock Springs
Medical Defense Committee: Earl Whedon, Sheridan — Chester Harris, Basin — F. A. Mills, Powell

EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT

HOW TO MAKE A FRIEND

It has been the firm conviction of the editor that the surest way to make a friend is not a delicate and successful cataract operation, but a successful hemorrhoidectomy or other hemorrhoid therapy.

Every cataract patient, no matter how successful his operation, compares his operated eye with the heavy lenses he is compelled to wear with the perfect eyes of youth. Not so with the patient whose life has been made miserable with bleeding piles. When he is cured by either method he imagines he is in heaven when he can enjoy painless defication. He remembers the pain and melena before the operation and praises the physician or surgeon who made the change. That man is your friend.

That the injection method fell into the discard for a while is not to be denied, when quacks used carbolic acid injections causing sloughing, great pain and terrible results, yet today some of the best operators in America are successfully using quinine urea in 5 per cent, or in 5 per cent phenol in olive oil. The Germans use alcohol, but the pain attending its use is severe, and the fibrosis is no better than that produced by the other two injections.

Those cases where the piles originate internally and whose surface is covered by a pinkish columnar mucus secreting epithelium are fit subjects for the injection treatment.

Of course no external piles should be injected and it frequently happens that patients will have the two classes combined and then there can be no doubt but that removal is the proper procedure.

Experience is required and mad is the fool who thinks that because he has the patient and a hypodermic syringe and a bottle of carbolic acid that he is, therefore, a rectal specialist. He is capable of all kinds of damage and ought to be corralled, branded, cut and turned out on cactus.

On the other hand a trained, careful operator can bring relief and cure to thousands who are suffering and not take them away from their daily bread-earning jobs, or add large hospital bills to their other expenses. There is a call for the right kind of this work, and, if the regular trained medical and surgical men will not do it, the quacks will.

E. W.

THE WOOD TICK HAS CRAWLED IN HIS HOLE

In the springtime certain weather prophets look to the action of the ground hog for guidance in their weather prognostications. To them it means either a longer or shorter winter, depending on whether the said ground hog sees, or does not see, his shadow before he crawls back into his hole.

Not so with the wood tick. This fall he has not gone into the ground on time and the result has been late cases of Rocky Mountain spotted fever; the latest we have known in Wyoming.

In a recent letter Dr. R. H. Sanders of Rock Springs reported one case of genuine spotted fever, confirmed by laboratory tests, starting Oct. 14. As a rule this variety of

tick goes into the ground when the weather becomes very warm, so that after August 1 the danger of infection is small. Some newspapers are opposed to calling attention to the wood tick and its contagion, but no true medical man for one moment would let the question of financial loss of business compensate the loss of human life and the American physician must awaken to the seriousness of the spread of spotted fever to uninfected regions by means of the wood tick and be prepared to prevent the loss of life which is bound to occur as automobile traveling increases and the ticks become scattered throughout our nation.

The Public Health Service will be called upon yearly to furnish larger and larger amounts of the Spencer and Parker vaccine to be used in the prevention of the dangerous and often fatal infection. Can they meet the demand?

The Public Health Service is trying to find some other insect which has an appetite for ticks and perhaps their efforts may result in the destruction of these imps of Satan before they get in their deadly work on the un-vaccinated human victims.

Ye editor took the first dose of this vaccine used in Wyoming a few years ago and yearly since then has taken it and given it to all employees on his sheep ranch where these infected ticks exist. But no cases of spotted fever have developed among his employees; whereas, before the discovery of the vaccine one man lost his life by infection with spotted fever via a wood tick.

:E. W.

MEDICAL SOCIETIES

NORTHWESTERN WYOMING MEDICAL SOCIETY

The regular quarterly meeting of the Northwestern Wyoming Medical Society was held at Basin, Wyo., Nov. 7.

Fourteen members were present and one guest, Dr. Kanable, superintendent of the Wyoming Tuberculosis Sanitarium.

Dr. H. T. Harris presented a case of Banti's disease showing extreme enlargement of the spleen which had decreased somewhat in size after deep x-ray therapy.

Dr. Chester Harris showed some interesting x-ray negatives demonstrating severe fractures before reduction, after reduction, and negatives taken one or two years later.

Dr. Kanable gave a splendid talk on tuberculosis. It was noticeable that the discussion which followed took the form of questioning the doctor on various features of the disease.

Election of officers resulted in the selection of Dr. Frank Dunkle of Meeteetse as president, Dr. P. S. Read of Morland as vice president, and Dr. J. W. Gorder of Greybull as secretary-treasurer.

Discussions of slow pay and no pay accounts have been a prominent feature of our meetings for the past year. This Society has formulated a plan whereby all members furnish a list of such names which is available to all members of the Society. Credit ratings of all delinquent accounts are thus exchanged.

The next meeting will be held at Lovell the first Thursday in February.

J. W. GORDER,
Secretary-Treasurer.

NEWS NOTES

ROCK SPRINGS—Dr. Robert H. Sanders has recently sold his practice at Superior to Drs. Carl O. Larson, formerly of Sublet, and August Davis of Superior, who was Dr. Sander's assistant. Dr. Sanders has located at Rawlins, Wyo.

SHERIDAN—Dr. R. E. Crane of Sheridan, wife and oldest daughter, are taking a trip to the large cities in the East and visiting in Canada. Dr. Crane has not been well lately but we hope that he will soon be able to return and resume his busy practice.

ROCK SPRINGS—Dr. Oliver Chambers of Rock Springs is away on a vacation.

SHERIDAN—Dr. W. A. Steffen of Sheridan has recently purchased one of the pretty homes on Residence Hill and is now nicely located.

ROCK SPRINGS—Dr. John H. Arbogast has just had the sad news of the death of his father in Colorado. Dr. Arbogast attended the funeral.

SHERIDAN—Dr. Meredith has just returned from a trip to the East. He spent a week at the Crile Clinic in Cleveland. The doctor's mother has been in poor health and he brought her back with him. At the meeting of the staff of the Sheridan County Memorial Hospital, Dr. Meredith very kindly reported the good things he learned during his trip. His talk made an interesting addition to the staff meeting.

SHERIDAN—Dr. Earl Whedon attended the State Secretaries' Conference, Nov. 15 and 16, at Chicago, where he had the pleasure of meeting many friends among the state secretaries, editors and officers of the American Medical Association.

Medical Films

The Executive office of the Colorado State Medical Society has on file a complete list and rental prices of medical films recently made under the supervision of the American College of Surgeons. Secretaries of county societies in most cases have been sent copies of these lists, but in case local societies have not received them, information about the films can be obtained by addressing the Executive office.

WYOMING STATE MEDICAL SOCIETY

1929 Annual Session

MINUTES OF CASPER MEETING

Casper, Wyo., June 24, 1929.

House of Delegates called to order at 11 a. m. by President Dr. F. A. Mills. The following societies were represented:

Laramie county, Dr. W. K. Mylar; Natrona county, Drs. H. L. Harvey, J. C. Kamp; Northwestern, Drs. Chester E. Harris, Evald Olson; Sheridan county, Dr. Earl Whedon; Sweetwater county, Dr. R. H. Sanders; Carbon county, Dr. C. W. Jeffrey; Hot Springs county, Dr. J. D. Wilson; Fremont county, Dr. E. L. Jewell.

Quorum present.

The minutes of the meeting of the House of Delegates, held Aug. 27 and 28, 1928, were read and approved.

Secretary Whedon read his annual report which was ordered published.

SECRETARY'S REPORT

To the President and Members of Wyoming State Medical Society:

It gives me pleasure to make this, my 10th annual report.

Following our most successful Tri-State Meeting, held with the state medical societies of Idaho and Montana in the Yellowstone National Park, Aug. 27, 28 and 29, the minutes of the meetings of the House of Delegates and resolutions adopted were prepared and published in our joint medical journal, Colorado Medicine.

The reports of the Treasurer and Secretary and a complete list of the newly elected officers and a roster of the membership was also published in the December, 1928, issue.

The total expenses incurred by the Wyoming Society for the Yellowstone Park meeting were only $72.05.

During the past year, that is, from the last report made in August to the House of Delegates and audited by the councilors to date, I have collected membership fees as follows:

1927 dues,	1 member, total	$ 10.00
1928 dues,	7 members, total	70.00
1929 dues,	134 members, total	1,340.00
Or a grand total of		$1,420.00

One-half or $710.00 going into the general fund and $710.00 added to the medical defense. Last year we reported a total collection of 1,500 or 150 members paying, part of which was for previous years. This year we have 142 paying, of which 134 paid for 1929 and all members of the Society have paid their 1929 dues. The difference in membership is, therefore, due to deaths and removal from the state. This speaks volumes for our Society, as it certainly shows that the physicians of Wyoming are becoming more loyal to the State Medical Society.

The expenses incurred we paid were as follows:

GENERAL FUND

Yellowstone Park expenses	$ 72.05
Colorado Medicine	343.84
Officer's letter heads and envelopes	40.75
Printing programs	12.75
Stamps	26.00
Phones and telegrams	17.54
Badges	21.00
Stenographers	200.00
Treasurer's expenses	7.58
Typewriter ribbon	1.00
Total	$742.51

It will be seen that the expenses in the general fund exceeded by $32.51 the receipts in this fund. But the interest on deposits and the final payment of the amount due from the failed Basin bank more than offsets this loss.

No warrants have been drawn during the year against the medical defense fund and the Treasurer's report will show a most gratifying condition. It is a fact established by the investigator of the American Medical Association that the Wyoming State Medical Society has the greatest per capita reserve in its medical defense fund of any State Society in the American Medical Association. This ought to be a source of gratitude and forever silence the cry that we as a Society were so small that our protection never would amount of anything. Indeed, Mr. Woodward of the Bureau of Legal Medicine, says we have one of the best constitutions and by-laws and the best medical defense plan in the United States.

Continuing the discussion of membership all who are in the state and who paid 1928 dues have paid their 1929 dues, and we doubt if this record can be matched by any other State Society in the American Medical Association. During the past year several of our valuable members have moved to Colorado, California, Utah, etc., and six new members have joined. The total paid membership now stand at 134.

Deaths among our members since my last report have been:

Dr. Frank W. Brown of Laramie, Jan. 24, 1929, and Dr. H. A. Reichenbach of Casper, Feb. 29, 1929. May we stand and pause in our deliberation and reverence their memories in a moment of silence and recall their virtues now that they have passed to the great beyond.

In arranging the program for this annual meeting the mornings will be devoted to clinics, the afternoons to scientific papers and their discussion and every effort has been made by our Secretary to secure as many papers as possible by the members of our own Society.

We trust the program will meet with the approval of the membership and that free discussion will follow the different papers read. We are hopeful that Dr. Geo. P. Johnston will give a report on the chiropractor bill which was passed by the Legislature and signed by Governor Emerson over the protest of the members of the State Medical Society.

Dr. Hassed has been asked to explain the new annual registration law and its discussion should be interesting and enlightening. I think it is fair to say that only a very few members of the State Society knew anything about this bill until it was passed and our Society was given no chance to express its desires in the matter.

It seems self-evident that we, as a Society, have had little to say so far as legislation effecting our own welfare is concerned in the past session of the Legislature. What we shall be able to do in the future remains to be seen. Certainly some plan should be worked out so that our own interests can be better protected than they have been this year.

This year all members in good standing have received our joint State Medical Journal, Colorado Medicine. The total cost has been $342.81.

Your Secretary was again elected as editor by the councilors and was assisted by correspondents, selected to represent the different county societies

and where no county Society existed the members were solicited to send in news items. You will notice that we are not naming these correspondents, simply for the reason that some reflection might be cast for their failure to act. If no news items have appeared from your county Society, it has been the fault of one of your own members and not the editor's that your Society's doings and activities of your members were not printed in our Journal.

The value of a state medical journal cannot be over-estimated and we feel that we have had the closest of co-operation by the editor, Dr. C. F. Kemper, and the members of the Publication Committee of the Colorado Society. Last year at the Yellowstone Park meeting we divided the publication of papers among the three states and as many of the addresses were not presented as papers, due to our lack of funds, we were not able to hire an expert stenographer to report the entire Yellowstone meeting, we were somewhat curtailed in the publication of scientific papers. However, we were most fortunate in being given in our joint Journal many splendid papers from Colorado authors. This part of the Journal coming free to us. In other words, for what it cost Wyoming—i. e., $2.50 per year per member, we get our own part and the Colorado part thrown in free.

Several of our neighboring states publish four or eight-page bulletins which contain only local news and information from their State Society but print no scientific papers and these bulletins cost our neighbors more than we are paying for what we publish and then have all the good things from the Colorado Society thrown in free.

Next year we ought to try harder to encourage our Wyoming men to contribute papers to our part of the Journal. It will help them and our Journal. We have men who are capable of doing this work if they will only take the time to do it.

On May 15 we mailed copy for the June number, and yet by some error this material was left out of the June number, which is the annual university number. We feel very keenly the disappointment in not having the material published as it was very important just before our annual meeting.

We feel that the Natrona County Medical Society should have had the publicity which was there given to help to make this meeting the success it deserves for their hard work in arranging for our entertainment and comfort.

Your Secretary attended the annual conference of the state secretaries at Chicago last November and enjoyed the meeting very much. It's hard to define just what you bring back to your State Society on such trips, but somehow the very things that are troubling you, some other secretary has had to meet and the suggestions you get help in the daily conduct of your office and are of great help in the arrangements necessary for our annual meeting of the State Society.

The expenses for these trips are paid by the American Medical Association and the officers of that association take a great interest in our yearly meetings. They get a better idea of what we are doing out in the States. We learn of the many activities of the parent organization, the great American Medical Association, and we all ought to be proud to be members of the greatest medical association in the world.

To Dr. Mills we wish to express our thanks for his most helpful and guiding mind in the past year. There never was, during the year, the least friction and at all times he has given his best efforts to the welfare of the profession of which he has been the worthy head.

To dear old Dr. Evald Olson we again take off our hats in acknowledgment of his faithful and valuable services as Treasurer and to remind the Society that he has made a most excellent and honest official.

I close this, my tenth year as your Secretary, with the feeling that I am thankful that we are to enjoy such a helpful meeting as the one now occurring and hope that as the years go on our Society shall grow in importance and usefulness.

Respectfully submitted,

DR. EARL WHEDON,
Secretary.

Treasurer Olson presented his annual report which was referred to the Auditing Committee, consisting of the councillors.

TREASURER'S REPORT

To the Officers and Members of the Wyoming State Medical Society, in Convention Assembled at Casper, your Treasurer Begs to Submit the following report for the Year Ending June 20, 1929:

GENERAL FUND

Debit

1928		
Aug. 28, to balance	$ 293.40	
April 8, to fifth and final 10½ per cent dividend from First National Bank, Basin	54.56	
1929		
June 4, to cash received from Secretary Whedon, from Aug. 28 to date	710.00	
Credit		
June 20, vouchers, numbers 111 to 122, inclusive		$ 742.51
June 20, by balance		315.45
	$1,057.96	$1,057.96

DEFENSE ACCOUNT

Debit

1928		
Aug. 28, balance	$ 759.57	
1929		
April 8, to fifth and final 10½ per cent dividend from First National Bank, Basin	214.18	
June 4, cash received from Secretary Whedon, from Aug. 28 to date	710.00	
June 20, interest on U. S. Treasury Bonds	188.47	
Credit		
1929		
May 6, bought one $500 U. S. Treasury Bond		$ 497.69
March 8, bought one $1,000 U. S. Treasury Bond		981.94
June 20, by balance		392.59
	$1,872.22	$1,872.22
1928		
Aug. 13, to balance	$4,506.33	
1929		
March 15, bought $1,000 U. S. Treasury Bond	981.94	
May 10, bought $500 U. S. Treasury Bond	497.69	
June 20, by balance		5,985.96
Total par value, $6,000	$5,985.96	$5,985.96

On April 8, I received from the Receiver of First National Bank, Basin, Wyo., two checks, totaling $268.74, as payment for fifth and final 10½ per

cent dividend, making a total of 75½ per cent with loss of $627.09.

TOTAL RESOURCES OF THE SOCIETY

U. S. Treasury Bonds, par value	$6,000.00
Balance in First National Bank, Lovell, Wyo	708.04
	$6,708.04

Respectfully submitted,
EVALD OLSON,
Treasurer.

President Mills then appointed the following committees:

Resolutions: Drs. E. L. Jewell, J. D. Wilson.

Deaths: Drs. Evald Olson, W. W. Yates.

Place of next meeting: Drs. Chester Harris, R. H. Sanders, J. C. Kamp.

Thereupon the House adjourned to meet at 10:30 a. m., Tuesday, June 25.

Casper, Wyo., June 25, 1929.

Adjourned meeting of the House of Delegates called to order in the Elks' Club at 10:30 a. m. by President F. A. Mills.

The following members were present: Laramie county, Drs. Geo. P. Johnston, C. Y. Beard; Natrona county, Drs. J. C. Kamp, H. L. Harvey; Northwestern county, Drs. Chester Harris, Evald Olson; Sheridan county, Drs. F. A. Dolan, C. E. Stevenson, Earl Whedon; Sweetwater county, Dr. R. H. Sanders; Carbon county, Dr. C. W. Jeffrey; Hot Springs county, Dr. J. D. Wilson; Fremont county, Dr. E. L. Jewell.

Quorum present.

Mr. Johnson of the U. S. Fidelity and Guarantee Company addressed the House of Delegates on the question of Group Insurance in the Defense of Malpractice Suits. This matter was gone into very carefully. Thereupon Dr. Harvey moved and Dr. Sanders seconded, that the Chair appoint a committee to investigate this question of group insurance and to report back to the House of Delegates.

The Councillors reported that they had checked the books of the Secretary and Treasurer, together with their reports, and found the same correct, bank balances and securities as reported.

The Committee on Time and Place reported that they had selected Sheridan as the place for holding the 1930 meeting. The time to be left to the decision of the State Secretary.

Thereupon the House of Delegates adopted this report and selected Sheridan as the place to hold the 1930 meeting.

The Secretary presented the resignation of Dr. J. L. Linn as President-elect and the same was accepted by the House of Delegates with regrets. Dr. E. L. Jewell was thereupon elected President-elect. Dr. C. W. Jeffrey of Rawlins was elected Vice President.

It was moved, seconded and carried, that the office of President be declared vacant and Dr. C. W. Jeffrey, the elected Vice President, be declared President, according to the Constitution and By-Laws. Dr. Mills thereupon called Dr. Jeffrey to the chair, who thanked the Secretary for the honor conferred upon him and gave a very interesting history of early days in Wyoming.

Dr. R. H. Sanders of Superior was elected Vice President.

Dr. Evald Olson of Lovell was re-elected Treasurer.

Dr. Earl Whedon of Sheridan was re-elected Secretary.

Dr. C. Y. Beard of Cheyenne was elected Councillor for three-year term.

A Medical Defense Committee was elected as follows: Drs. Earl Whedon, Secretary, Sheridan; Chester Harris, Basin; F. A. Mills, Powell.

Dr. George P. Johnson, Cheyenne, delegate to the A. M. A., reported that he expected to attend the Portland meeting of the A. M. A. He also made a report of the Legislative Committee covering the last session of the Legislature.

Dr. F. A. Mills, Powell, moved that a standing legislative committee be appointed to examine the laws of the state and report any changes which, in their opinion, should be made.

Thereupon the House of Delegates adjourned to meet at 5 p. m.

Casper, Wyo., June 25, 1929.

5 P. M.—Meeting of the House of Delegates called to order by President Jeffrey.

Quorum present.

The Committee on Resolutions presented the following, which were duly adopted: "Be it resolved by the Wyoming State Medical Society that we extend our hearty thanks to the Natrona County Medical Society for the warm and cordial treatment we have received through the time of our meeting. We wish to thank them for the courtesies extended, for the use of the Country Club, and for the enjoyable party.

"Be it further resolved that we express to the wives of the Natrona County Physicians our appreciation of the courtesies and entertainment furnished to our visiting ladies and ourselves.

"Be it further resolved that we express our thanks to Dr. Clyde Roeder of Omaha, Dr. C. E. Cooper of Denver, and Dr. J. G. Sheldon of Kansas City for their talks and papers. We also wish to thank all the doctors who read papers and so ably presented them to the Society.

"Therefore, be it further resolved that this report be spread upon the minutes of our Society and made a permanent part thereof.

"Be it further resolved that we extend our hearty thanks to the Elks' Club of Casper for the use of their wonderful Home and for the courtesies extended to us at our meetings.

"Respectfully submitted,
"DR. E. L. JEWELL,
"DR. J. D. WILSON."

Committee on Deaths reported as follows, which report was adopted and spread on the minutes:

"The Obituary Committee wish to submit the following report:

"Whereas, It has pleased the Supreme Ruler of the Universe to call from our midst our beloved friends and fellow members: Drs. Frank W. Brown and H. A. Reichenbach;

"Therefore, be it Resolved, By the Wyoming State Medical Society in regular convention assembled at Casper, to extend our sincere sympathy and condolence to the bereaved families and friends.

"And be it further resolved, That we rise and bow our heads in silent respect for our deceased members and ask our Heavenly Father to comfort and guide the sorrowing families.

"And be it further resolved, That these resolutions be spread upon the minutes of the Society and sent to members of the bereaved families.

"Respectfully submitted,
"DR. W. W. YATES,
"DR. EVALD OLSON."

Dr. Whedon presented the following amendment:

Amendment to Chapter XII, Section 5, adding to the end of this section the following: "Failure to pay the annual dues of $10.00 during the

month of January of each year shall automatically release the Society from all liability to defend suits for acts done prior to said default. This shall not, however, apply to estates of deceased members." This amendment will be voted on at the next annual meeting.

The application of Dr. J. R. Hylton of Douglas having been passed upon by the Council was duly considered by the House of Delegates and he was elected as a member.

Dr. Clyde Roeder of Omaha was elected an honorary member of this Society. The question of group insurance was again brought before the House and after considerable discussion Dr. Earl Whedon was elected Trustee of the Master Policy of the U. S. Fidelity and Guarantee Company and he was instructed to prepare an article for Colorado Medicine explaining the terms and conditions under which members could take advantage of the reduced rates offered by this company.

Secretary Whedon was instructed by the House of Delegates to purchase a golf trophy at the value of about $25.00, which trophy should be offered annually as a golf prize to be played for by the members of the State Society and permanently retained by the member winning the same three times.

Thereupon the House adjourned.

DR. EARL WHEDON,
Secretary.

Casper, Wyo., June 25, 1929.

5:30 P M.—The Council of the Wyoming State Medical Society met at the above time and place. Present: Drs. C. Y. Beard, H. L. Harvey, C. W. Jeffrey, Earl Whedon. Application of Dr. J. R. Hylton was received and recommended for membership. Dr. Earl Whedon was elected editor of the Wyoming section of Colorado Medicine. The general welfare of the State Society was freely discussed, whereupon the Council adjourned, subject to the call of the President.

EARL WHEDON,
Secretary.

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BOOK REVIEWS

Gonorrhea and Kindred Affections. Gonorrhea in the Male, Chancroid and Verruca Acuminata. By George Robertson Livermore, M.D., F.A.C.S. Professor of Urology, Medical Department, University of Tennessee, Memphis, Tennessee: Consulting Urologist, Memphis General and Baptist Memorial Hospitals, and Hospital for Crippled Adults; Attending Urologist, St. Joseph's Hospital; Fellow, American Association of Genito-Urinary Surgeons; Southern Surgical Association; American Urological Association; American Urological Association, etc. And Gonorrhea in the Female and the Infectious Granulomata. By Edward Armin Schumann, A.B., M.D., F.A.C.S. Associate Professor of Obstetrics, University of Pennsylvania; Gynecologist and Obstetrician to Philadelphia General Hospital; Gynecologist to Frankford Hospital; Gynecologist and Obstetrician to Jewish Hospital; Obstetrician to Chestnut Hill Hospital; Gynecologist and Obstetrician to Memorial Hospital; Fellow, American Gynecological Society, Obstetrical Society of Philadelphia, etc. D. Appleton and Company, New York and London. 1929.

For the student of Medicine and the general practitioner this book is very timely.

The Authors, aware that intelligent treatment is dependent on a thorough knowledge of Etiology, Bacteriology and Pathology, have laid particular stress on these subjects.

The Authors are to be commended for outlining the treatment without laying too much stress on any single method.

The book is concise and well written, the illustrations are good. It is a needed adjunct to those who would treat gonorrhea and its kindred affections.

DR. JAMES A. PHILPOTT.

A Surgical Diagnosis. By J. Lewis Donhauser, A.B., M.D., F.A.C.S., Clinical Professor of Surgery, Albany Medical College (Union University); Associate Surgeon, Albany Hospital; Attending Surgeon, Child's Hospital, Albany. Illustrated. New York and London. D. Appleton and Company, 1929.

This book is essentially a text-book for the use of medical students, interns, and recent graduates who are entering general practice. It is full and complete. A great deal of attention is paid to the pathology of the different conditions discussed. It contains a vast amount of information which is made readily accessible by the extensive use of outlines and charts. Concise handling of each subject is made necessary by the tremendous amount of ground covered. The book should be of value as a reference work, and could be used to provide suggestions of subjects to be studied in more detail in specialized texts and larger surgical works. Many of the charts on differential diagnosis are of unusual merit.

P. R. F.

ERRATUM

Due to makeup difficulties the bibliography was omitted from the article by Dr. Duval Prey. A note to this effect was also omitted.

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EDITORIAL NOTES AND COMMENT

LAMPADA TRADUNT

Though young by comparison with many of our Eastern and European contemporaries, we have our traditions. If we have besides the strength and vitality and capacity for growth which belong to our years, it is in large measure due to the unselfish service of those able men who have, until now, guided our destiny. How large then, is our responsibility! It is large enough, we believe, to be shared with our readers. Among them are many who are doing pioneer work in medical science; some in laboratories, others at the bedside and in the presence of diseases that were until recently unknown to man and which are still unknown beyond our Rocky Mountains. This Journal is at once for your information and for your use. With your help we shall become an indispensable tenant of medical libraries throughout the world. There is already evidence in the editorial files to prove that the opportunities of this generation will not be neglected. The new editor acknowledges with gratitude this promise of your co-operation and takes up with better courage the torch that has been placed so generously within his grasp.

OUR RESPONSIBILITY FOR CRIME

The report submitted to Governor Adams by a commission appointed to investigate the recent riot at the State Penitentiary is of great interest to the medical profession. In this report the conditions underlying the unrest are carefully reviewed and clear cut recommendations are made advising a full time physician and a psychiatrist to conduct examinations for all prisoners. The need for reorganizing a parole board is emphasized as well as arranging for steady employment of the prisoners with some measures for compensation. During the last decade there has been a growing sentiment on the part of the public and the legal and medical professions that our present methods of dealing with the offender are unsatisfactory. We all agree that the community must be protected from criminal acts and that crime must be prevented as far as possible and every measure taken for the rehabilitation of the criminal, and yet little has been accomplished in this direction. The legal approach is based chiefly upon the character of the crime committed, insisting only that the criminal receive a penalty in accordance with the crime and that he be segregated for a fixed period of time. The medical and psychiatric viewpoint is chiefly from the angle of the criminal himself. From the legal point of view we have the consideration of society at large, and from the medical and psychiatric point of view the consideration of personality make-up and of the social factors entering into the crime which is so often an expression of a long continued maladjustment. From the psychiatric point of view we feel marked emphasis should be placed on the early consideration and treatment of these tendencies which will mean in many cases the prevention of adult criminal careers. Study should be made of the en-

tire biography of the individual in the sense of his present assets and liabilities, regarding the beginning of his criminal tendencies often found to date back to early childhood. Preventive studies of a thorough type should prove of great value. At recent meetings of both the American Medical Association and the American Bar Association resolutions were adopted whereby the criminal should receive greater individual study and analysis and treatment. The Bar Association adopted this resolution:

> That there be available to every juvenile and criminal court a psychiatric service.
>
> That no criminal be sentenced for any felony in any case where the judge has any discretion as to the sentence until a psychiatric report is filed.
>
> That a psychiatric report be made on every prisoner before release.
>
> That each state establish a system of administrative transfer and parole and that no decision of a parole or transfer be made without a psychiatric report.

The Massachusetts law passed in 1921 has proven successful and indicates very definitely what the medical profession can contribute to our growing turbulent crime situation. This law provides for complete psychiatric examination of the following crimes: (1) murder of the first degree; (2) persons indicted or bound over for a felony who have been previously convicted of a felony, or (3) previously indicted for an offense more than once. Dr. Overholser states that 80 per cent of the criminals examined have been found to be normal and responsible for the crimes with which they were charged. So the statement that the psychiatrist is always sure to find a man insane is untrue. It has also been shown in Massachusetts that in 20 per cent of the cases examined there has been a saving to the state of many thousand dollars.

We, in Colorado, should heartily endorse the findings of our commission and our medical association might well adopt, at its next meeting, an appropriate resolution concerning them. All phases of medical science available in the profession and state should be utilized to combat crime and to make conditions in the penitentiary more favorable for the rehabilitation of criminals. The proposal of Governor Smith to take from the courts the power of sentence and lodge it in a special board of penalogical and psychiatric and legal experts is far from realization, but it seems logical in many ways. Through this procedure the jury would find the defendant guilty or not guilty and the board of experts would carefully consider the indications and contra-indications for treatment of various types. As a part of a state program we have already made definite recommendations in this regard. If the recommendations of the commission's report are carried out Colorado will make a wonderful step forward, especially if adequate classification and segregation of prisoners can be made following complete psychiatric examination, if a parole board is established that gives due weight and consideration to the findings of the medical studies, if adequate arrangements can be made for the employment of prisoners serving sentence and measures taken for compensation during this time. Our active medical association should do everything possible to further this work. The psychiatric approach will eventually bring about new methods of dealing with offenders in place of vengeance motives which are now proving so inadequate and disastrous. Proper treatment may be prescribed based on the findings of individual examination and one may expect in the future a substitution for the concept of social defence with a steadily increased emphasis on the personality of the offender and the degree of menace which he represents. In the report of our commission signs of progress of this type are seen and the resolutions of both the American Bar Association and the American Medical Association indicate that we should give more and more consideration to the mental constitution and the history of those who come before our courts for disposition. This will result in dealing out truer justice and at the same time assure society of greater and more thorough measures of protection.

F. G. E.

FRESHMAN GIRLS

The unsophisticated visitor upon our university campus, at the time when the great bell tolls and youth presses at the teeming doorways, may reasonably believe that there is nothing more perfect than the freshman girl. Alas, all is not gold that glisters. Dr. Muenzinger applies the cold compress of facts (Page 8) and the glister is removed. Not less than 15 per cent of these sylphs are definitely malnourished; 18 per cent harbor tonsils that are diseased, many of them are moody creatures who have "crying spells" and "fits of the blues."

Should Dr. Muenzinger have spared to us our so pleasant illusions? We think not. She is concerned to point out to teachers, to parents and to those who may have influence with parents and teachers the lost opportunities of school days. What the Denver schools have done, in raising standards of nutrition, may also be done elsewhere. It is urgently necessary that the responsibility of the schools for the health of the children should be fully realized, for many school graduates will never become college freshmen and be blessed with a second chance.

The girls, at least, who pass to the state university are destined to a generous measure of physical reform. Even there the care of sick minds seems to be on a less certain basis. "The time of the medical adviser is limited." Those who were privileged to hear Dr. Arthur Ruggles'* lecture on College Mental Hygiene may remember that four psychiatrists are unable to cope with the mental hygiene problems of the students at Yale, so that the university authorities have found it advisable to introduce an elective course in mental hygiene. This has enabled many students with minor problems of adjustment to gain enough insight to recover mental balance without recourse to special interviews. Possibly the University of Colorado might derive benefit from a similar plan. At least there are not wanting in the faculty those who are admirably equipped to teach the subject.

*The four lectures delivered by Dr. Ruggles to the Colorado Society for Mental Hygiene on November 11, 12, 13 and 14 have been printed and are available to non-members at $1.00 a copy. Copies may be obtained from the executive secretary, Miss Ruth Lloyd, at the Colorado Psychopathic Hospital.

A RECORD TO MATCH

Members of the Colorado State Medical Society will find food for serious thought in a brief editorial written for the Wyoming Section of this issue by Dr. Earl Whedon of Sheridan and entitled "Your Annual Dues, Ten Dollars, Please." In it Dr. Whedon points out that the year 1929 saw every 1928 membership in the Wyoming Society renewed except in the few instances wherein doctors moved away from the state.

A record possible for the Wyoming State Medical Society is well-nigh impossible for our own organization, with seven times as many members, one may say.

But is it impossible? Certainly not, if officers of county societies will but accept their responsibilities for what they are—a genuine privilege to serve the profession. To carry it further, is there a county society in Colorado numbering within its membership every eligible physician in the Society's jurisdiction? Cannot 1930 see these men brought into organized medicine?

Our congratulations to the Wyoming doctors. May we emulate them!

International congress of physiotherapy

The fifth international congress of physiotherapy will be held at Liège, Belgium, from September 4 to 6, 1930. The meeting will coincide with an international exposition and with the centenary of independence. The American section will be under the presidency of Dr. William Benham Snow of New York, the editor of Physical Therapeutics. The main subjects on the agenda are the physiotherapy of rheumatism and of the diseases of the central nervous system. Those who wish to attend are requested to write as soon as possible to Dr. Dubois-Trepagne, 25 rue Louvrex, Liège, Belgium, enclosing the dues of 150 Belgian francs.

OBSERVATIONS ON THE GROWTH AND SPREAD OF CARCINOMA*

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The paths laid down by the earlier workers in any field of science, just as those made by the explorers of a new country, are usually the routes by which future investigators approach the same domain. The psychology of man, like that of the sheep, impels him to follow the beaten track and similar conclusions result as inevitably to the former as similar scenery occurs to the latter.

Occasionally the bolder or more dissatisfied student pursues a wholly new or at least a modified plan. Although his is the only method by which advancement in knowledge may be won, the perils he faces are very real and definitely inhibitive. Either his unorthodoxy makes him and his ideas unpopular and hence deprives him of needful attention and support or he finds himself in such a morass of conflicting conclusions that he is glad to retreat to the standard and more widely accepted points of view. The older one grows the more difficult it becomes to act or dress or think in radically different fashion from one's fellow man.

Hence it follows that in such an obscure problem as that presented by the occurrence and character of carcinoma, any worker who possesses the desire to add new territory soon meets with an extremely discouraging situation. No matter where he starts, others have entered at the same point and his course is almost certainly along old trails and reaches to the same outlook. Apparently his choice is limited to the sin of heresy or the sterility of orthodoxy.

If my purpose were to pursue either course this introduction would be superfluous and largely irrelevant. Instead, however, I aim to arrange in some systematic sequence certain sets of facts, suggest some possible and largely obvious conclusions and leave the actual exploration, the claiming of new territory, to other times and more adventuresome spirits. However we shall, in certain instances, find ourselves on the very borders of human knowledge concerning carcinoma processes and, in groping about for more light in dark places, we may hear that baleful warning cry of "heretic" which has fully as inhibitive tones of authority in science as it ever had in the realms of religion.

My first set of facts has to do with microscopic studies of carcinoma of the colon. The established teaching concerning the growth of carcinoma perhaps born in Virchow's trenchant aphorism "omnis cellula e cellula" and certainly elaborated by his pupils, especially Ribbert, is that a certain cell has undergone a wholly useless, purposeless, malignantly destructive division and that the two new cells which result from this one have the same sinister characteristics. Thus, as the multiplication goes on, a parasitic mass of cells is formed, destroying the tissues of their host, using up his nutriment and energy for their own baneful proliferation and bringing about the ultimate destruction of their host as well as of themselves. Rarely is the theory put so baldly, or shall I say, badly. "A few cells" or "a group of cells" or "a central zone of cells" are supposed to assume this anarchistic habit and pull down the pillars of the temple which nature originally apparently designed that they should help build and support. No one has ever seen either this one cell running "amuck" or even a small group of its descendents and it is quite to be questioned whether they might be recognized as such if they were seen. More closely scanned, our sole ground for this teaching is the apparent fact that carcinoma appears to arise at a given spot and to spread from that spot to adjacent tissues. Coming back to carcinoma of the colon, I am struck with several facts which somewhat cloud the prevailing theory. In the first place, the growing edge of the carcinoma as it spreads along the mucosa very

*Read before the Colorado State Medical Society, Greeley, September 3 to 5, 1929.

often presents a remarkable appearance. The intact adjacent epithelium of the mucosa reveals in many instances every sort of variation between the bizarre carcinoma cell and the normal goblet cell. A gland will contain a few cells with the heavy chromatin content of the carcinoma nucleus and others closely contiguous will appear entirely normal. Moreover, the advancing carcinoma in no way is manifestly disturbing the adjacent mucosa. No atrophy of normal cells, no wall of connective tissue, in short no line of demarcation can be seen in many of these growths. Against an invading destructive agent there is not the slightest anatomic evidence of any defensive or resentful phenomena. May it not be that the reason for the conspicuous absence of "reaction to injury" is that there is no injury, no invasion by a foreign group, but only a slight perversion in the metabolism of the cells of that region and that this perversion spreads to neighboring cells? The end result is a vast array of cells whose vital mechanics become so profoundly altered as to result in a huge untrammelled preponderance of multiplicative activities. In fact, in many of these growths the impression one receives is of some sort of a pernicious wave which is spreading almost imperceptibly to the cells of that region. A proliferative influence beats on the cells, at one spot it is true, but not necessarily or reasonably on one cell alone or even a group of cells. There is plenty of evidence that this malign "miasma" is constantly at work and that partial response to its influence is increasingly evident as the age of the entire organism advances.

But additional clues are furnished by the colon and these are for us to follow more fully and to interpret more wisely. The occurrence of polypoid masses in the mucosa is well recognized and occasionally these are openly accused of forming the basis for malignant neoplasms. On the whole, however, they are classified as benign and hence we are unconsciously led to place them in an entirely separate category of pathologic tissue formations. For many years I have been closely scrutinizing these polyps and have been astonished to find how frequent is their occurrence in all adults. Roughly estimated, fully 50 per cent of persons more than thirty years of age will show some form of polypoid hyperplasia of the colonic mucosa. These growths may vary in appearance from only a tiny lump in the surface epithelium, or a raised plaque, to a comparatively large, sessile or pedunculated papilloma, and in number from one to many thousands. Careful histologic study shows in every one of these a surprisingly large number of those characters which mark the frank carcinoma. Hyperchromatism, mitotic figures, irregular size and arrangement of cells and disorderliness of structure predominate often to such a degree that "malignancy" is plainly calling for its recognition. Still more significant is the occurrence of such polyps in the colon which actually is the seat of outspoken carcinoma. Many of these polyps are miniature replicas of the main carcinoma and are often adjudged to be implants from the original tumor, but there is little evidence to support this theory. They represent rather that tendency which such a colon has for growing carcinoma.

I use the words "tendency to develop carcinoma" because that is the accepted method of speaking. I might more rationally assume that all colons possess inherently this tendency, that it is some inhibitory influence which normally prevents the formation of a neoplasm, that proliferation is the fundamental physiologic property of cells, that this proliferation in the presence of proper environment will continue indefinitely, that the cell is the inheritor of the property of eternal life, in short that the remarkable fact which needs explanation is not why carcinoma occurs, but rather why cells ever have an orderly growth and arrangement, or why they cease to proliferate when the mucosal lining is properly organized.

But whether carcinoma is the result of the removal of inhibition or is caused by active excitants, the study of the colon with its polyps, its potential carcinomas, its near carcinomas and its real carcinomas, suggests strongly that there is an influence exerted

on the epithelium of the colon which in at least fifty per cent of adult human beings results in abnormal proliferation. No one cell alone succumbs but in a given situation the "poison cloud" spreads from cell to cell until a spot is located where they respond. Often this response is a comparatively benign one and polyps result. Occasionally true carcinoma is the product and in an occasional patient multiple carcinomas arise one after the other, with such an overwhelming picture of so-called carcinoma diathesis, that one must assume that in such an individual carcinoma must eventually end his existence. For such, modern therapeutics has little basis for affording a hopeful outlook.

My second and apparently wholly unrelated set of facts has to do with carcinoma in bile-bathed structures. It is well known that carcinoma of the stomach is the most common of all carcinomas but that in the duodenum it is almost the rarest. It may bulge through and into the pylorus until it overhangs the duodenal mucosa, but only involves it by approach through the peritoneal lymphatics. Primary carcinoma of the duodenum is exceedingly rare. Furthermore, primary carcinoma of the small intestine is infrequent and although the jejunum and ileum occasionally are the seats of such tumors, their frequency increases many fold when the ileocecal valve is passed. Primary carcinoma of the liver is so uncommon it has been stated not to exist. Although this statement is probably not true, when carcinoma does occur, it usually is situated in a cirrhotic liver. Again one almost never sees carcinoma of the gallbladder without gallstones. This fact is often cited as support for the theory of chronic irritation as a fundamental basis for cancerous neoplasia, but it should also be noted that in these gallbladders invariably the stones are sequestered and free biliary flow is not present. What is the one factor which predominates in all these cited instances? The only one I can see is the presence or absence of fresh bile. Carcinoma occurs in the injured liver (cases of cirrhosis), and in the gallbladder, when bile is reduced or absent, and only then. On the contrary it is absent in the duodenum and small intestine where fresh bile freely bathes the mucosal surfaces. Does fresh bile furnish inhibition to proliferation or does it negative the usual factors inciting such proliferation? Frankly, I do not know. But I venture to suggest that there may be some component of this substance which, supplied to the blood stream, might prevent all carcinomas. If this is treason, make the most of it.

With a third set of facts my heresy becomes almost established. Every student of the histologic characters of carcinoma has noted the amazing changes which the cells undergo in form, arrangement and staining reactions as they metastasize to various sites and organs. A small, slowly growing, well differentiated carcinoma of the stomach becomes in the adjacent lymph node an exuberant, rapidly proliferative, massive tumor losing almost every resemblance to its parent stem. We have even been enabled to posit a few general rules which govern growth of carcinoma according to the soil to which it is transferred. For example, lymph nodes furnish an almost ideal field, the liver is a good medium (remember that there is no bile in the hepatic sinusoids), the lungs definitely resist metastasis and when they begin to show flooding with carcinoma it will be found almost anywhere, bars are largely down and the "tendency to grow" of these cells is free to wreak its will on an almost defenseless host. So also the heart muscle, voluntary muscles and the walls of blood vessels. Nerve sheaths resist invasion of carcinoma and the substance of the brain itself seems to exert a distinctly inhibitory effect. It is quite apparent, then, that natural factors of environment affect markedly the growth of carcinoma. In other words the carcinoma cells proliferate freely or feebly or not at all, according to the influences which surround them in the living body. It matters little whether we regard these influences as inhibitory or exciting, whether they affect the internal mechanics of the cell by altering its metabolism or act only on the surrounding liquid medium in which the

cells survive, the fact seems to be established that carcinoma arises and persists wholly and solely because of a pathologic change in environment. Is some necessary metabolite lacking or is it present in excess? Is the undue proliferation a phenomenon of altered katabolism or anabolism? Would certain tissue extracts restore this physiologic imbalance, no matter in what it consists? Does bile contain this substance? Who shall say?

Intricate as seems the complexity of the puzzle, dark as appears to be the hope of any successful solution of its inherent mystery, somehow I have the notion that when it is brought to light as it surely must be, we will be amazed at its simplicity and will be chagrined at the fact that right around the next corner, almost before our eyes, reposed the open sesame for the most baffling problem of modern medicine.

Summary

The dividing line between the carcinoma cells and the normal cells of the mucosa of the colon is an irregular one, without evidence of any influence except a gradual transition from one type to the other. Evidence of destruction on the one hand or anatomic resentment on the other are absent.

Polyps of the colon may be anatomically apparently complete replicas of the normal mucosa, show a tendency to abnormal proliferation and arrangement of cells, or represent frank carcinomas. These facts serve to indicate a malign influence exerting itself on the cells of the colon and gradually promoting a state of abnormal multiplication.

Bile-bathed structures are notoriously free from primary cancerous growth. These same structures, deprived of bile, are prone to carcinoma. It may be that bile has some substance inhibiting the growth of carcinoma.

Carcinoma grows best on soil suitable for its propagation. Environment plays a heavy rôle. The suggestion is hazarded that this environmental influence possesses a definite inhibitory factor for the growth of carcinoma.

MEDICAL ETHICS

What do we (not scientific men busy studying the science of ethics or morals) mean by ethics, and especially medical ethics? I think politeness to our associates—not the cringing politeness of inferiors to superiors, nor the patronizing, condescending politeness of superiors to inferiors, but the freedom and ease that always accompanies the association of equals. Note where this brings us. We unconsciously think of ethics as applying to the higher walks of life—the ministry, the law, medicine, the teaching profession, and a few others. But is that so? There is a standard of ethics applicable to every walk in life. Bankers, corporations, merchants, farmers, manufacturers, laborers, all have a standard of conduct that is ethical for that particular occupation, and without it and without the fact that the rank and file live up to it, this world would be worse than a bedlam.

So, I am sure, we are all agreed that a standard of ethics, meaning by that, courtesy and consideration, unselfishness and a willingness to share, and share alike, both in responsibilities and rewards, is essential in every occupation.

Applying this idea to ourselves, ethical conduct is all important in the medical profession. I am not going to attempt to lay down any well-defined rules as to how a man should conduct himself, even in average circumstances. I could not if I would, and would not if I could. Besides, if I did undertake such a thing, you all may know more about it than I do. To put the whole thing in a small compass, the Highest Authority the world has ever known, on human conduct, once said, "Therefore, all things whatsoever ye would that men should do unto you, do ye even so unto them," and I am perfectly willing to let it rest at that.—W. R. Cushing, M.D., in the Virginia Medical Monthly, December, 1929; page 605.

PHYSICAL AND MENTAL HANDICAPS IN GIRLS ENTERING THE UNIVERSITY OF COLORADO

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The following report of physical and mental handicaps in girls entering the University of Colorado; with a description of corrective work done in the university, is submitted in order that more preventive work may be instituted before college age.

The Discovery of Handicaps

Table 1

PHYSICAL DEFECTS
1924-1927

	Total number	Number defective	Percentage Defective
Nutrition:			
Underweight 7%- 9%	1000	170	17.0
10%-14%	1000	157	15.7
15%-19%	1000	110	11.0
20%-24%	1000	41	4.1
25% & over	1000	4	.4
Total	1000	482	48.2
15% & over	1000	155	15.5
Overweight 15 lbs. & over	1000	153	15.3
Defective vision (Less than 2-3 by Snellen card)	1000	203	20.3
Nasal defects:			
Septum deflected	518	56	10.8
Turbinates hypertrophied	518	6	1.2
Spurs	269	23	4.4
Tonsils:			
Removed	829	398	48.1
Enlarged	829	59	7.1
Diseased	829	153	18.0
Heart lesions	1000	29	2.9
Pulse: Before exercise	1000	231	23.1
After exercise	1000	280	28.0
Blood pressure: Below 100	1000	133	13.3
130 or over	1000	25	2.5
Grave's disease	1000	6	.6
Lungs: Tuberculosis	1000	17	1.7
Appendix: Removed	1000	73	7.3
Appendicitis	1000	60	6.0
Urine: Albumen	249	22	8.8
Pus Cells	249	48	19.2
Hemoglobin:			
80-89	518	172	33.2
70-79	518	41	7.9
60-69	518	7	1.4
50-59	518	1	0.2

Developmental Defects in 291 Students Entering in September, 1928

Grades of Posture Tracings
A—Perfect posture
D—Poorest posture

	Number of Students	Percent
A	0	0
A—	0	0
B+	24	8.3
B	58	20
B—	81	27.8
C+	73	25
C	32	11
C—	10	3.4
D	11	3-7
D—	2	0.7

Defective Feet

	Number of Students	Percent
Mildly defective feet	35	12
Moderately defective feet	37	13
Markedly defective feet	16	5.5

Scoliosis

	Number of Students	Percent
Mild lateral scoliosis	27	9.3
Moderate or extreme curvature	9	3.1

Kyphosis

	Number of Students	Percent
Mild	1	----
Extreme	1	----

Table 1 is the result of entrance physical examinations of one thousand girls from the classes entering the university in 1924, 1925, 1926, and 1927.

The nose and throat examinations have been made by a specialist for only part of the time; therefore the full one thousand are not included.

Results of urinalyses were reliable for only two hundred and forty-nine; therefore more are not included.

The Tallquist scale was used until 1927; after that the hemoglobin tests were made by the Dare scale. The report, therefore, includes only the two years 1927 and 1928.

Forty-eight per cent were 7 per cent or more underweight as compared with 33 per cent for all the school children of the country.[1]

The causes of underweight in the college group are in the main the same as those found by Dr. R. P. Emerson,[2] and are largely preventable:

"Physical defects; lack of home control; over fatigue; improper diet and faulty food habits; faulty health habits." To these should be added the primary causes,—ignorance of hygiene, and parental ignorance of mental hygiene. One hundred and one, or 37 per cent of the freshman girls entering the university in September, 1927, had had no course in hygiene; while forty-seven, or 17 per cent, had received no instruction in anatomy, physiology, or hygiene.

Table 2

PHYSICAL DEFECTS IN GIRLS FROM A COLORADO CITY OF 12,000 POPULATION COMPARED WITH THOSE IN THE TOTAL NUMBER OF GIRLS ENTERING THE UNIVERSITY IN SEPTEMBER, 1925:

	Total 359		From city of 12,000 96 girls	
	No.	%	No.	%
History of tuberculosis	4	1.1	0	0
Tuberculosis in family	36	10	11	11.5
Defective vision	97	27	26	27
Defects in nose	82	23	19	20
Tonsils, removed	110	30.6	31	32.3
enlarged	47	13.3	10	10.4
diseased	71	20	22	23
Thyroid, slightly enlarged	63	17.5	22	23
moderately enlarged	41	11.6	17	17.7
Grave's disease	2	0.5	2	2
Heart disease	7	1.9	0	0
Pulse, rapid	85	23.6	31	32.4
Blood pressure, below 100	24	6.6	7	7.3
130 or over	8	2.2	4	4.2
Appendix, removed	27	7.5	6	6.2
appendicitis	15	4.1	5	5.2
sensitive	15	4.1	3	3.1
Urine, albumen or pus	19	5.3	6	6.2
Nutrition, underweight:				
7%- 9%	49	13.6	15	15.6
10%-14%	58	16.1	18	18.7
15%-19%	43	12	7	7.3
20%-24%	15	4.1	5	5.2
25% and over	1	.3	0	0.
Total	166	46.2	45	46.8
Overweight, 15 lbs. or more	36	10	8	8.3
Nutrition classes	70	20	19	20

Table 2 shows a marked agreement between the number of defects in girls from one of the cities of Colorado and in the total number of girls. From this it seems that there are no marked regional differences.

Table 3

CAUSES OF RAPID PULSE IN COLLEGE FRESHMAN GIRLS WITH SPECIAL REFERENCE TO HYPERSECRETION OF THE THYROID

Freshman Girls 1927-1928. Total About 260

RAPID PULSE

On entrance (first column); On consulting the Medical Adviser during the year (second column):

Pulse before exercise		
100-109	70	23
110-119	13	4
120-129	14	16
130-139	4	3
140-149	0	3
	101	49
Pulse after fifteen to twenty-five hops		
110-119	27	0
120-129	16	26
130-139	4	8
140-149	4	12
150-159	1	4
180	0	1
	25	51

Causes of rapid pulse in eighty-eight of the above

1.	Heart lesion	8
2.	Focal infection	7
3.	Anemia	2
4.	Recent illness	6
5.	Change of altitude	2
6.	Hypersecretion of thyroid	
	Very severe	2
	Moderately severe	7
	Slight	54
	Total	63

Analysis of sixty-three cases of hyperthyroid secretion

Thyroid, palpable or enlarged	63
Tremor and increased pulse rate	63
Heart murmurs	13
Tonsils infected	12
Otitis media	1
Sinusitis	6
Pyuria	4
Rheumatism	1
Appendicitis	3
Infected cervical glands	2
Nervous disturbances	18
Underweight, 7% or more	39

Except in a few cases, the diagnosis of hyperthyroid secretion has been based on clinical signs alone.

Thyroid in Above 260

Thyroid:	
Palpable	74
Enlarged 1	75
Enlarged 2	2
Tremor:	
Slight	38
Moderate	69
Marked	13
Exophthalmos	1

It is evident from table 3 that many of the rapid pulses are due to preventable causes. Focal infections were found in 46 per cent of the students showing signs of hyperthyroidism. Since a causal connection has been established between infections and hyperthyroid secretion, it is probable that many of these cases were also preventable.

Table 4

MALNUTRITION REPORT OF FRESHMAN GIRLS

	Examined	Underweight Total	7%-9%	10%-14%	15%-19%	20%-24%	25% or over	Total	Percentage
1924-1925	309	83			33	14		130	42.1
1925-1926	357	49	58		43	15	1	166	46
1926-1927	311	35	44		32	11	2	124	40
1927-1928	249	34	40		20	4	1	99	40

The decrease in percentage of underweight girls entering the university in 1926 has been traced to the largest city in the state, where nutrition classes were conducted the year before.

Table 5

City of 250,000

	1925 No.	1925 %	1926 No.	1926 %		
7%- 9%	12	16.5	6	8.5	1925	54 % underwt.
10%-14%	10	13.5	7	10	1926	29.5% underwt.
15%-19%	16	22	5	7		
20%-24%	2	2.5	3	4	46% decrease in 1926	
25% over	0	0	0	0		
Total	40	54%	21	29.5%		
Total no. examined)		73		71		

City of 12,000

	1925 No.	1925 %	1926 No.	1926 %		
7%- 9%	14	5	12	15.5	1925	43.5% underwt.
10%-14%	10	20	13	16.5	1926	46 % underwt.
15%-19%	4	4	8	10		
20%-24%	5	5	1	1.5	5.5% increase	
25%-over	0	0	2	2.5	5.5% increase	
Total	42	43.5	36	46		
Total no. examined)	96		78			

Outside the above cities

	1925 No.	1925 %	1926 No.	1926 %		
7%- 9%	24	13	15	9	1025	43.5% underwt.
10%-14%	28	15	24	15	1926	41.5% underwt.
15%- 9%	20	10.5	33	13.5		
20%-24%	8	4	6		3.5% decrease	
25%-over	1	0.5	0	0		
Total	81	43.5	67	41.5		
Total no. examined)		188		162		

Table 4 gives an analysis of malnutrition and shows a marked decrease in the percentage of underweight in 1926. Table 5 shows this decrease to be almost entirely among girls from Denver, where nutrition classes had been conducted in the high schools. The further decrease in 1927 was possibly due to a notice sent to all girls applying for entrance to the university, to the effect that those who were found to be 12 per cent or more underweight would be placed in nutrition classes and their physical education activities limited. Directions for gaining weight were included and the suggestion that physical defects should be removed, when possible, before entering college.

Table 6

NERVOUS CONDITIONS

	Total number	No. with nervous condition	Percentage with nervous condition
Nervous breakdowns	1000	93	9.3
St. Vitus dance	1000	14	1.4
Hysterical attacks	1000	31	3.1
Numb feelings	1000	68	6.8
Stiffness of muscles	1000	23	2.3
Stammering	1000	16	1.6
Night terrors	1000	79	7.9
Fears	1000	163	16.3
Sick headaches	1000	215	21.5
Insomnia	1000	32	3.2
Convulsions	1000	11	1.1
Crying Spells	842	190	23.0
Biting finger nails	842	204	24.0
Twitching of muscles	842	76	9.0
Fainting spells	842	67	8.0
Tantrums	557	13	2.3
Desire to scream	557	76	13.7

UNDESIRABLE TRAITS

	Total number	No. with nervous condition	Percentage with nervous condition
Irritable	1000	134	13.4
Changeable	1000	364	36.4
Over conscientious	1000	162	16.2
Unable to concentrate	1000	246	24.6
Fits of blues	1000	278	27.8
Easily discouraged	1000	195	19.5
Self-conscious	1000	474	47.4
Bashful	1000	139	13.9
Unduly sensitive	1000	294	29.4
Seclusive	1000	102	10.2
Lack of interest in boys	1000	87	8.7
Easily misunderstood	1000	121	12.1
Domineering	1000	50	5.0
Give up easily	951	61	6.3
Difficult to make decisions	951	211	2.2
Cannot sit still	557	37	6.7
Procrastinating	557	66	11.9
Discontented	557	78	14.0
Moody	557	121	21.8
Absent-minded	557	89	16.0
Feeling of being discriminated against	557	28	4.8
Bored	557	38	6.8
Sarcastic	557	121	21.7
Easily upset	557	114	20.5
Fiery tempered	284	42	14.8
Careless	284	37	13.0
Timid	284	34	12.0
Reticient	284	35	12.3
Friends older	284	70	24.6
Intolerant	284	15	5.3
Hypercritical	284	12	4.2
Reckless	284	13	5.0
Extravagant	284	37	13.0
Selfish	284	39	13.7
Proud	284	74	26.0

CAUSES OF WORRY

Health	1000	84	8.4
Lack of sleep	1000	75	7.5
Difficulty making friends	1000	136	13.6
Clothes	1000	80	8.0
Homesickness	1000	135	13.5
Sororities	1000	41	4.1
Too few activities	1000	80	8.0
Finances	1000	158	15.8
Responsibilities	1000	74	7.4
Religion	1000	23	2.3
Books read	1000	19	1.9
Fear of losing scholarship	1000	119	11.9
Desire for high grades	1000	317	31.7
Fear of failure	1000	320	32.0
Ignorance of how to study	1000	156	15.6
A particular course	1000	168	16.8
Individual instructors	1000	30	3.0
Little things	1000	281	28.1
Lack of physical strength	841	76	9.0
Physical defect	841	46	5.5
Uninteresting personality	841	159	18.9
Making a poor impression	841	167	19.8
A poor conversationalist	841	305	36.2
Personal appearance	841	125	14.8
What others think of you	841	253	30.0
Social blunders, breaks	841	94	11.2
Being talked about	841	74	8.8
Ignorance of correct social usage	841	69	8.2
Personal relations	841	15	1.8
Roommate	841	11	1.3
Loneliness	841	83	9.9
Too few dates	841	102	12.1
Family conditions	841	88	10.5
Social problems	841	24	2.8
Mental ability	841	43	5.1
Rooming conditions	556	14	2.5
Too many activities	284	17	6.0

Table 6 is the result of a mental hygiene questionnaire given one year in the winter quarter, another year on entrance in September, and the remaining two years early in the fall quarter. The last method, when time was allowed for explanation of the purpose of the questionnaire, proved to be best. Individual consultation would have given more accurate results and would have helped in the mental hygiene work, but the time of the medical adviser is limited. The minimum results obtained are adequate for the purpose of this paper. Results obtained after five months in college varied little from those obtained on entrance.

Many of the nervous disturbances before college age are due to focal infections, hyperthyroid secretion and poor mental hygiene; but the great majority are the direct result of overactivity. Most of our children are overstimulated and overactive from birth until college rush week.

Primary children rush to school, work often at high tension, rush home, eat a hurried meal, rush back to school, work another two hours within doors, remain for a geography club or to write misspelled words a hundred times, and return home to do home work. For many children there is no time for rest and little for play in the open air. One bright little girl in the primary grades had badly infected tonsils and was much underweight. In spite of this and the fact that she was a member of a nutrition class, she was doing three years' work in two and took part in seven extracurricular activities that year.

Our junior high school boys and girls ape the behaviour of adults, with card parties at fourteen, when they should be chasing each other around the block.

In high school, they struggle to pass the required hours, or if bright, to pass four years in three. In addition, they enter as many extracurricular activities as possible in order to become popular and make the honor society. Their parties consist of a nine o'clock movie followed by a dance! One high school girl was overjoyed when asked to attend a committee meeting on Monday night, and said—"Now I have something for every night in the week." One college freshman (one of five in her group of twenty-five who had had nervous breakdowns in high school) took part in eight extracurricular activities during her senior year. Two girls, who tied for valedictorian in a large high school, entered college 19 and 35 per cent respectively underweight.

The summer before entering college is spent in a gay round of parties by one group, in working for necessary finances by another, and in attending summer school by still another. During entrance physical examinations, one hears such remarks as these: "I could pass a better examination later on. I'm just tired out from so many parties this summer."

Some underweight girls make large gains in weight during the first three weeks of college because their lives are more regular than at home!

Corrective Work in the University

The Physical Education Department for Women of the university, in charge of Professor Clare Small, aided by the Medical Adviser to Women, is endeavoring to remove as much of the above handicap as possible, and to help every girl to attain positive health.

Physical Examination. A complete physical examination is made on entrance. This includes urinalysis, hemoglobin test, a complete orthopedic examination, measurements and strength tests. Parents are notified of removable physical defects. On the basis of this examination, the amount of exercise is prescribed, graded in five groups A-E, with a few resting or deferred. The lowest grade includes walking, archery and other walking games, and individual corrective exercises with as much rest as is needed. If unable to take any exercise, the student lies down in the rest room during physical education hours, or defers to another quarter.

The number of girls in each activity grade in the fall quarter of 1928 was as follows:

	Number	Percent
A	75	13
B	218	37.7
C	142	24.5
D	37	6.4
E	51	8.7
Resting	11	1.9
Deferred	44	7.6
Total	578	

Consultations with the Medical Adviser. Students with discovered defects are re-examined. Routine quarterly examinations are given to students of grade C and below for medical advice and adjustment of their activity grade. Grades A and B are examined in the spring quarter and also on entrance in the sophomore year. The Medical Adviser also examines students who come voluntarily for adjustment of their activity grade or for medical advice; also those referred by the Physical Education faculty and others. Mental hygiene examinations can, at present, only be given to a few of the most necessary cases, on account of limited time.

Consultations with the instructors of the Physical Education Department are held in regard to the daily hygiene of each girl. Special instruction is given in the correction of constipation and dysmenorrhoea.

Physical education activities are directed to develop organic power (vitality, vigour and endurance), skill, strength, impulses and judgment, and also for the correction of orthopedic defects.

Hygiene lectures and nutrition classes are available to all students. Most of the girls 14 per cent or more underweight are required to attend nutrition classes during the first quarter. The methods used are similar to those of Dr. Wm. R. P. Emerson for grade school children. His rules were slightly modified as follows: (1) nine hours' sleep every night; (2) one hour's rest daily; (3) 2500-3000 calories of food daily; (4) one glass of milk twice a day between meals or before retiring.

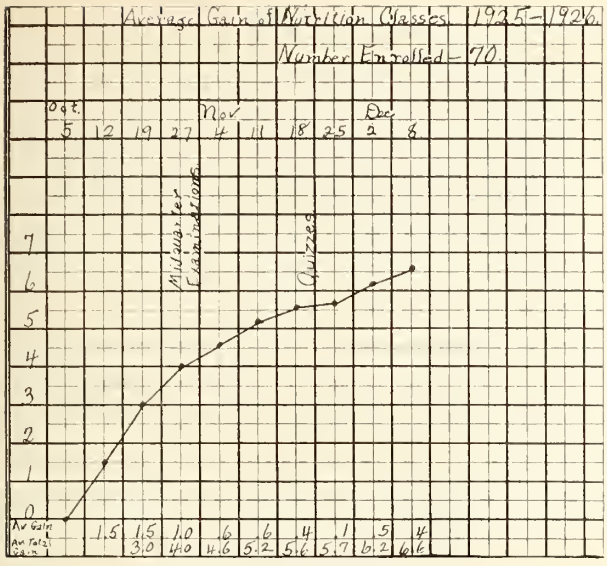
In order to allow time for rest and sleep, the number of credit hours in academic work was reduced to twelve or thirteen, with the exception of a few mentally superior students. Exercise was prescribed according to endurance and physical defects.

The most important cause of failure to gain was worry over quizzes. The composite chart (Page 13) shows a high weekly average gain until midquarter examinations, when there is a sudden drop. Other reasons for failure to gain were physical defects, colds, acute illness, menstruation, week ends at home, hiking trips, "Homecoming," too low calories (due to contracted stomach, indigestion and fashion), worry, nervousness, too much social life and homesickness.

Table 7

GAINS MADE BY NUTRITION CLASS GIRLS

Year	Number	Number free to gain	No.	Number not free to gain %	Time	Total average gain
1924-25	60	---	---	---	4 Months	5 lbs.
1925-26	70	29	41	58	8 Weeks	6.6 lbs.
1926-27	52	7	45	86	9 Weeks	6.4 lbs.
1927-28	58	18	40	70	11 Weeks	6.6 lbs.



Composite Weight Chart

In spite of the number not free to gain (having focal infections, etc.), and the causes militating against normal hygiene, the average total gain of the classes in ten weeks was six and three-fifths pounds. All the gains, however, are not shown by weight. Eighty-five per cent reported that they were benefited by the class, a few had not time to keep the rules, while the remainder said they would have gained without it. Some of the girls with contracted stomachs had gradually increased their diet to a normal quantity of food and were just beginning to gain.

Comment

Why should preventive measures be carried out before college age?

1. Many children are permanently and incurably handicapped.

2. The majority of the children of the state never enter college.

3. Prevention is easier and less expensive than cure.

4. Even those whose defects are removed while in college are handicapped, especially the first year.

5. The time of the students and of the medical adviser is limited.

The above report shows clearly that the care of the health of our children cannot be left entirely to the parents. Physicians and educators must take the initiative in educating the parents to an understanding of the condition of their children, and in stimulating them to the use of preventive measures.

Gesell[3] writes: "The tradition and inherited organization of the schools contain no true conscience as to health." One might substitute society for schools in order to include the whole complex causation of malnutrition, nervous disturbances and maladjustments.

REFERENCES

[1]Emerson, William R. P.: Nutrition and Growth in Children, Appleton, 1923, p. 3.

[2]Emerson, William R. P.: Nutrition and Growth in Children, Appleton, 1923, p. 4.

[3]Gesell, Arnold: The Normal Child and Primary Education, Ginn, 1912, p. 26.

PHYSICIAN'S LIABILITY INSURANCE*

PAUL M. CLARK, ATTORNEY
DENVER, COLORADO

I think it probable that not many physicians and surgeons, when they undertake the care, treatment or operation of a patient, give much thought to the relation which they bear, or will bear, to a patient from a purely legal standpoint. Your relation to every patient is a contractual one. In the absence of an express contract (and that means in almost every case, for express contracts between physician and patient are very few) the law implies a contract between the physician and his patient, by which the physician undertakes and represents that he possesses that degree of skill and learning ordinarily possessed by physicians and surgeons practicing in his community; that he will exercise ordinary care in his diagnosis and treatment of the patient, and that he will use his best judgment. The patient, on his part, in addition to undertaking to pay reasonable compensation for the services to be rendered, agrees by implication that he will accept the treatment prescribed by his physician and follow the physician's directions. In entering into this relation with

*Read before the Colorado State Medical Society, at its fifty-ninth annual meeting at Greeley, September 3-5, 1929.

your patients you do not undertake or warrant to make a cure, nor are you responsible for bad results, unless such bad results are due either to a lack of ordinary skill or to a failure to use ordinary care. The use of ordinary care, or as it is sometimes put, reasonable care, is all that the law requires, and to constitute negligence under this test the physician must have done something that a reasonably skillful physician in his community would not have done, or left undone something which such a one would have done under like circumstances. The standard required varies with the community, and in the final analysis is determined by the medical profession.

In determining whether or not a physician has been negligent in any given case, that is, whether he has failed to exercise ordinary care, the courts of this and most other states have announced a rule of law which is not only entirely reasonable, but quite favorable to the physician. For example, the question of what is or is not ordinary care can be proven only by the testimony of physicians, and the jurors are required to reach their conclusion on this point upon the testimony of physicians solely, which is as it should be. For obviously, this being a scientific question, no layman is competent to pass upon it, although there is probably no subject upon which the layman is so willing to give advice as in medicine. Where two or more methods of treatment are approved by the medical profession in the community where the physician practices, the use of either method as his judgment may dictate, so long as it is a generally approved one, is sufficient, and if that method is followed with ordinary care the physician is not liable for results, no matter how unfavorable.

Nor is the mere fact that unfavorable results are obtained any evidence whatever of negligence. In other words, the doctrine of res ipsa loquitor is not applicable in malpractice cases. As was said by Judge Taft, now Mr. Chief Justice Taft:

> "A physician is not a warrantor of cures. If the maxim res ipsa loquitor were applicable, and failure to cure were held to be evidence, however slight, of negligence on the part of the physician or surgeon, causing the bad results, few would be courageous enough to practice the healing art for they would have to assume a financial liability for nearly all the ills that flesh is heir to."

This being the law in this and practically every other state, when a dissatisfied or unscrupulous or avaricious patient decides to make an attempt to extort money from a physician, he must say—and prove—that you have done those things which you ought not to have done, or you have left undone those things which you ought to have done and there is no health in us. This is easy to say, but fortunately in most cases difficult of proof, because in a great majority of cases members of your profession do possess, in this community at least, that degree of skill and learning required by the law and implied by their contract, and do exercise ordinary and more than ordinary skill in the diagnosis, treatment and care of their patients. Unfortunately, however, neither the possession of ordinary skill, nor the exercise of ordinary care, nor even the possession and exercise of the most extraordinary skill, care and judgment will in every case prevent the bringing of an action against a physician or surgeon alleging malpractice. It is my belief that the great majority of cases brought against physicians or surgeons are without any honest foundation or basis, in fact, and that the object of these suits is not to obtain justice but to obtain money, and in many cases to avoid paying for the physician's or surgeon's services. In some cases only the patient is unscrupulous, and unfortunately in others both the patient and his lawyer are equally unscrupulous or avaricious.

Unfounded and unjust claims against physicians and surgeons are not infrequently the result of hasty criticism or indiscreet remarks by brother physicians, based upon a personal dislike on the part of the doctor making the criticism or remarks; or, as not infrequently happens, are the result of a hasty

answering of a supposedly hypothetical case in which only a part of the real facts, either intentionally or unintentionally, are laid before the physician to whom the question is put. Sometimes this supposedly hypothetical case is put by a lawyer acquaintance to a doctor and sometimes a layman, who proceeds to set forth what is supposed to be the facts concerning some patient's ailment and the treatment accorded by the physician or surgeon, after which he asks casually whether or not in the opinion of the doctor this treatment is proper or skillful or the approved method, and if he receives the answer that he is looking for, the result is a suit against some physician alleging malpractice. The careful avoidance of hasty criticism and the scrupulous refusal to answer hypothetical questions without being absolutely certain that all essential facts are disclosed, will prevent many claims from being made, or suits brought, against reputable physicians.

I have heard not a few lawyers complain that the attitude of your profession makes it very difficult to win a malpractice case against a physician of good standing, for the reason that his brothers cannot be persuaded to testify against him. This criticism, if it can be so called, I think, is just and is one of which you should be proud. I think you doctors individually are loyal to your brother doctors and that you are ever ready to support any reputable member of your profession against unwarranted and unjust attacks in court or out. It is my belief, however, that while you as individuals are willing to give all aid possible under proper circumstances, in this State you have been lacking in an organized effort to discourage and defeat unjust and ill-founded claims, and I believe that you would do well to consider the advisability of following the example of some other states whose medical societies have organized "Medical Defense Committees" whose duty it is to investigate claims made against members of their profession and where they believe that the physician is not at fault to render all aid possible in the defense of the case, including the furnishing of such expert testimony as is necessary for the defense. Such a committee, properly organized and properly functioning, can be of tremendous aid in defeating unjust claims. While you should be the first to condemn a physician or surgeon who attempts to practice without the necessary qualification, or who is known to be careless or negligent in the practice of his profession, and these fortunately are very few, you should be equally alert to come to their defense as individuals and by organized effort when any competent and reputable physician is unjustly attacked. Such a committee as I have just mentioned should be chosen with great care and members should be appointed to it who are both able and willing to give the time necessary which ordinarily is not very great. I am not suggesting, of course, that any part of the expense of the defense should be borne by your organization, but I do believe that the testimony of experts furnished at the request of such a committee, particularly if said experts are willing to testify without compensation, will have greater weight with a jury and will be of great value in the defense of malpractice cases.

Now, in order to justify the title chosen for my remarks, permit me to say just a word about physicians' liability insurance. I think there are some doctors who believe that when they pay a premium for liability insurance, this insurance should effectively protect them against any embarrassment or inconvenience, as well as save them harmless from financial liability in the event of claims or suits for malpractice. Obviously no liability insurance policy can do all this, any more than a fire insurance policy can prevent a fire, or an accident policy prevent an accident. Nor do I believe it to be to the interest of the individual, or your profession generally to prevent all embarrassment or publicity in the only way possible, that is, an early settlement of all claims. Bear in mind that every unjust and ill-founded claim of malpractice which is defeated without settlement discourages the bringing of

others. There are many instances in which a claim could be settled for much less money than it takes to defeat it in court, and nevertheless the proper practice may be to refuse settlement and to contest and defeat the claim, both for the vindication of the doctor unjustly accused and for the good of the profession at large. While the bringing of a malpractice case against a physician often results in some embarrassment and temporary unfavorable publicity, it is my belief that the reputation of a good man is founded primarily on ability and character and that such a one suffers no permanent injury by the bringing of an unfounded case. By your individual co-operation and support of your professional brothers and by a little organized effort, you can defeat in almost every case, unjust and unfair claims and discourage the bringing of others, and by so doing make it possible for insurance companies to carry your physicians' liability insurance at a reasonable rate, because everything that you can properly do to facilitate the defense of these cases lessens the insurance company's expense and tends to prevent the raising of rates, which is inevitable in communities where malpractice cases are permitted to flourish and receive no organized opposition by your profession.

In addition to the foregoing suggestion which I make not in any spirit of criticism, but with the hope of being helpful, I can probably do no better than to quote the language of Mr. Lloyd Paul Stryker, counsel of the Medical Society of the State of New York, who has probably successfully defended as many malpractice cases as any other man. He makes these eleven suggestions:

"First: Before consenting to treat or operate upon a patient, the physician should honestly inquire of himself whether or not he is in fact competent to treat or operate for the particular condition or ailment which he finds. Medicine of late has become more and more specialized. Men who are expert in one branch, may have had little or no experience in another. Make sure that you are really competent to treat or operate for the particular condition which confronts you. If you have any doubt upon this subject, call in one of your professional brethren who is expert in the particular subject involved, and see to it that he is employed as a consultant or that he actually renders the treatment or performs the operation in question.

"Second: Be careful of your diagnosis. Make sure before you arrive at a conclusion that you have ascertained, weighed and duly considered every relevant fact, including every detail of the history, and that you have considered the special systemic factors present in the particular patient. Be sure to utilize every diagnostic aid which science has made available. These would include x-ray, urine and blood tests, pathological and microscopical examinations. If you have any honest doubt as to the correctness of your diagnosis after you have weighed and considered every possible fact which should be made a basis thereof, call in another physician for a confirmation of your diagnosis. A differential diagnosis is ofttimes extremely difficult. Sometimes the ablest physicians have diagnosed the condition of a woman as suffering from a tumor, and upon this diagnosis have operated, only to find that upon an examination of the uterus the woman is not suffering from a tumor, but is in fact pregnant. Sometimes a rigid examination of the particular patient as to her menstrual periods, the last date of intercourse, and, other questions will render such a faulty diagnosis improbable.

"Third: In all questions of surgery, consider first whether in fact a surgical operation is required. In case of doubt between a radical or a less radical course, consider carefully whether or not the less radical procedure is not the one first to employ. In connection with surgical operations, consider carefully the kind of anesthesia to be employed. Some anesthesias are proper in some instances, and improper in others. Which one is proper depends upon a variety of circumstances, among which are the strength and age of the patient, the patient's heart and many other circumstances. Be careful

to inquire whether cocaine has been administered within a short time before the administration of the general anesthesia. Also inquire from the patient's history whether he or she has any idiosyncrasy for any particular form of anesthetic. In the administration of the anesthesia, make sure that the anesthetist is competent and understands his or her duties. If possible, have a physician act as the anesthetist rather than a nurse. Make sure also that care has been employed in the matter of enemas, and in seeing to it (except in cases of emergency involving life or death) that the anesthetic, if it is a general one, is not administered to a patient with food in the stomach. Consider carefully whether or not a general or a local anesthesia is the one of choice. This may depend upon a variety of circumstances, including the condition of the patient, the nature of the operation, etc. Before performing the operation, make sure that every antiseptic precaution has been taken according to the most approved methods. This includes not only the sterility of the operator and of his instruments, but of all those who participate in the operation, such as the so-called sterile nurse, etc. Then, too, in performing the operation make sure that a careful sponge count is made—that the number of sponges or packs placed within the body of the patient are counted, and the number which are removed are likewise counted, so as to be certain that no foreign body remains after the incision has been closed. Before calling for the sponge count, make a careful personal inspection of the operative field to assure yourself that no foreign body is remaining, and put a record of this inspection on the hospital chart, have it done in the presence of the witnesses and have them sign the chart showing that this inspection has in fact been made.

"Fourth: Keep careful records. This applies not only to the records of the office, but to the records of the operation and of the treatment in the hospital. It is wise in every case to have the patient consent in writing to the operation, which consent should contain a brief statement showing that he or she understands the nature of the operation, and the possible outcome. Where a patient insists upon leaving the hospital against the doctor's advice, make sure that a statement is signed by the patient setting forth that fact. Where one physician desires, or through circumstances beyond his control is forced, to relinquish a case to another physician, cause the patient to consent to this course in writing.

"Fifth: Make sure that all your instruments and appliances are of the most approved design and make, and are in proper working order. This applies not only to the operative instruments, but to the operating tables, chairs, and all other appliances. Especially is this true in connection with the use of surgical needles. Make sure that the needles are secured from some well-recognized manufacturer, and that the needle employed is of a size and strength requisite to the particular demands which will be imposed upon it.

"Sixth: In all treatments and all operations, make sure that the methods employed are the proper and approved methods in general use. Do not use antiquated methods, nor employ new methods which have not yet received the sanction of the profession.

"Seventh: Keep abreast of the times. Read the medical journals and the new textbooks. Keep your knowledge fresh and up-to-date. Attend your County Medical meetings where you will hear papers read of great scientific value.

"Eighth: Be conservative in your prognosis. Unjustified promises have often led to disappointments, which in turn have resulted in malpractice actions. Do not promise what you are not certain of delivering.

"Ninth: One of the most productive sources of litigation is that of X-ray therapy and diathermy. Do not attempt to do X-ray therapy or diathermy unless you understand it. A physician who merely purchases an X-ray machine and follows the instructions of the salesman or of the circular of the manufacturer, is indeed assuming a large hazard. X-ray therapy is a highly technical specialty. New discoveries and new theories

are constantly evolved. The proper factors of dosage and other factors require a knowledge of the best and most recent thought upon the subject. In determining the factors, make sure that you have made a correct computation, and that you are using the proper factors generally recognized as such at the time the therapy is administered. Inquire carefully to determine whether or not the patient has had a previus exposure of X-ray within a time that would render it unsafe for you to subject him or her to a new exposure. Make sure that your machine is in proper working order, and that there are no loose wires with which the patient or the friend or parent accompanying the patient, may come in contact. Many actions have arisen in this way. In administering this therapy, make sure that the proper intervals between doses are maintained.

"Tenth: Be tactful and just to your fellow practitioners. Do not indulge in needless criticism. Careless remarks, ofttimes unjust, have led to litigation.

"Eleventh: In treating your patient or your patient's family, exercise the highest possible degree of care and good faith. Be scrupulously honest in your advice and in your treatment. Do not give your patient any basis for the claim that you have been guilty of abandonment. If you cannot continue with the treatment, make sure that you have supplied a successor physician of talents equal to your own, and that the patient consents to this substitution. In every dealing with a patient or with a patient's family, if you are certain of your diagnosis and if you have considered and mastered every technical question of medicine or surgery which may be involved, let your conscience be your guide. Establish a reputation for good faith and fair dealing at all times with everyone."

Ladies and Gentlemen, yours is a great profession, and the practice of it is fraught with many difficulties. Courts almost universally have recognized this fact and have been reasonable in the announcement of the rules of law by which you should be judged. In this state the Legislature has enacted a reasonable statute of limitation within which a suit against members of your profession can be brought for malpractice, namely, two years. And before closing let me add one other cheerful note. The practice in our state courts has often been criticised, by reason of the fact that heretofore trial judges have not been permitted to comment upon and express their views of the testimony to the jury, as has been the accepted practice in the English courts and in our federal courts. Recently, however, our Supreme Court has, by amendment to the rules of court, given trial judges the privilege of commenting upon testimony and expressing their views in charging the jury, in order to help the jurors in their difficult task of weighing and valuing testimony offered. It is my belief that if our trial judges properly avail themselves of this privilege it will be a material aid in defeating unjust claims against members of your profession, as well as in other cases. Our trial judges now may, and in my opinion should, in proper cases, express their opinion of testimony offered and guide and assist the jurors in reaching a proper conclusion.

PUBLIC HEALTH NOTES

EDITOR R. P. FORBES, M.D.

"Infant Mortality for 1928 in 729 Cities of the United States" is the subject of an interesting report recently published by the American Child Health Association.

Denver's rate would seem not to do credit to itself and to the state of Colorado. Its rate of 91 deaths of infants under one year for each 1,000 live births is the highest of that of the 25 largest cities in the United States—a marked contrast to cities like Portland and St. Paul where the rate is in the forties. Also disturbing is the fact that the infant death rate in Denver has remained much the same for the past fifteen years, whereas in most other large cities and in many of the smaller cities there has been a marked decrease in the rate.

A vivid presentation of the situation with a series of charts and tables was made by Dr. F. P. Gengenbach at the last meeting of the Denver Public Health Council. At the close of Dr. Gengenbach's discussion a motion was passed that a committee be appointed to prepare and set before our city authorities the status of Denver's infant mortality and recommendations as to some action that might be taken looking toward a future solution of the problem.

The committee consisting of Dr. F. P. Gengenbach, chairman, Dr. W. H. Halley, and Mr. Charles H. Haines of the Chamber of Commerce, has recommended that a study be begun on January 1, 1930, and continued throughout the year and as far as necessary into 1931 to determine if possible the causes of Denver's high infant death rate so that there may be a well-defined basis on which to build any child hygiene program that may be determined upon.

The study of tuberculosis being undertaken by a committee of the last General Assembly is well under way. The committee appointed by Governor Adams consists of Senator Charles F. Horn, Senator Roy A. Davis, representatives Dr. Emory J. Brady, Dr. W. H. Twining, C. Edgar Kettering.

The committee is to present a report and recommendations to Governor Adams on December 1, 1930. No conclusions will be made until certain facts are collected. Physicians have been asked to give certain information regarding their tuberculous patients; also concerning sanatoria and hospitals; and what it is costing to care for indigent patients.

The success of the study depends on the co-operation of the physicians in reporting cases. Requests were sent to physicians in the state to report all cases of tuberculosis known to them during the year 1929, using special record cards. On December 1 requests had been received from physicians for 6,000 record cards. Sanatoria and hospitals had requested 4,000; relief associations, clinics, county commissioners, 1,000.

Mesa county school nurses have reported the greatest number of "Blue Ribbon" children in the state to the Colorado Council of State-wide Health Agencies. The campaign of vaccination for smallpox and immunization for diphtheria carried on through the Mesa County Medical Society, with the co-operation of the school boards, has made it possible for a large number of children to attain this standard.

LIBRARY NOTES

EDITOR J. J. WARING, M.D.

WILLIAM BEAUMONT

The life of Dr. William Beaumont, United States Army Surgeon, is a marvelous record of devotion to truth, accurate observation, original experimentation, amazing patience and determination. Osler called him "the pioneer physiologist of the United States and the first to make a contribution of enduring value."

At the meeting of the Thirteenth International Physiological Congress, August 19, 1929, in Boston, a special reprint of Beaumont's "Experiments and Observations on the Gastric Juice and the Physiology of Digestion" was distributed to the members of the Congress. This reprint and the medal



Fig. 1. Medal in honor of Beaumont, issued by Thirteenth International Physiological Congress: obverse.

(Figs. 1 and 2) struck on the same occasion in Beaumont's honor are in the Library There also may be found Jesse S. Myer's authoritative "Life and Letters of Dr. William Beaumont," and a second edition of the "Experiments and Observations" printed in 1847, in Burlington, Vermont. The original edition of 1833 is not in the Library, but at least one copy is in Denver.

In 1834 a re-issue of the first edition was made by Lilly, Waite & Company, of Boston. In 1838 Dr. Andrew Combe of Edinburgh issued an edition in Scotland with numerous notes and comments. A German edition appeared in 1834 but apparently no French edition was ever issued.

It cannot be said that his native country is tardily recognizing the importance of the work of this great pioneer physiologist of the United States. In 1900 a monument was erected to Beaumont by the Upper Peninsular and Michigan State Medical Societies at Fort Mackinac where he performed his preliminary experiments on "that old fistulous Alexis." On October 4, 1902, William Osler delivered, before the St. Louis Medical Society, his now well-known address, "William Beaumont — a Pioneer American Physiologist." In 1926 a boulder with a bronze tablet was erected by the Beaumont Club on the green in Lebanon, Connecticut, his birthplace. And finally, just the other day, August 24, 1929, a tablet to Beaumont was unveiled at Plattsburg, New York, where the first and the fourth and last of his formal series of experiments were conducted. America is proud of her "backwood physiologist."

His manuscripts and papers were presented by his family to Washington University in St. Louis, where they are on exhibition.

His body lies in Bellefontaine Cemetery in St. Louis, but, as Steiner says, "his fame belongs to the World."

Alexis St. Martin, the French Canadian subject of Beaumont's experiments, died in 1880 at the age of 83 years and was buried at St. Thomas de Joliette, Canada. It must be unhappily recorded that his family successfully defeated the earnest efforts of members of the medical profession, including Osler, to get an autopsy.

Lexington, April 19, 1775.

"Here once the embattled farmers stood,
And fired the shot heard round the world."

Mackinac, June 6, 1822.

"Here accidentally an unknown hand fired a shot into the chest and belly of Alexis St. Martin, echoes of that shot also continue to be heard around the world."

The journals and books listed in the appended bibliography may all be found in the Library.

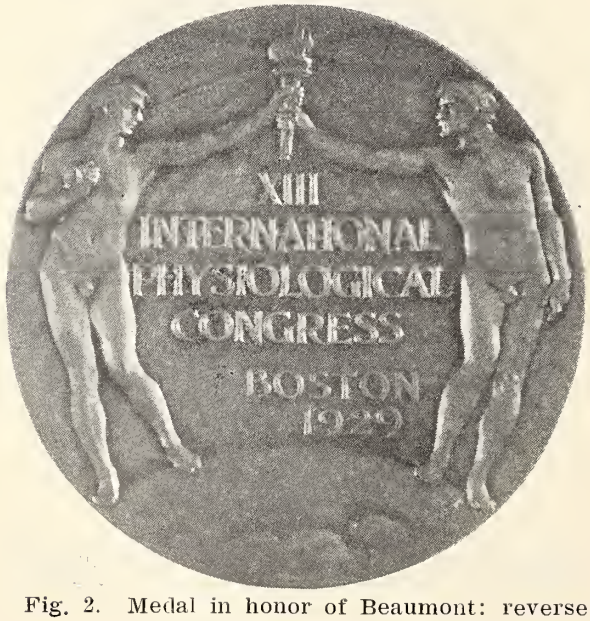


Fig. 2. Medal in honor of Beaumont: reverse.

BIBLIOGRAPHY

[1]"Life and Letters of Dr. William Beaumont." By Jesse S. Myer, M.D., St. Louis. C. V. Mosby Co., 1912.

[2]"Experiments and Observations on the Gastric Juice and the Physiology of Digestion." By William Beaumont, M.D., Second Edition, Corrected by Samuel Beaumont, M.D., Burlington, Vt.

[3]"Experiments and Observations." By William Beaumont, M.D., facsimile of the original edition of 1833, together with a biographical essay, "A Pioneer American Physiologist," by Sir William Osler, Cambridge: Harvard University Press, 1929.

[4]"William Beaumont and His Work." By V. C. Vaughan, M.D., Trans. Michigan State Medical Society, 1896.

[5]"William Beaumont: A Pioneer American Physiologist." By William Osler, Jl. A. M. A., 1902.

[6]"Dr. William Beaumont." By Jesse S. Myer, M.D., Bull. Soc. Med. Hist., Chicago, 1913, Vol. I, p. 150.

MEDICAL SOCIETIES

This department of Colorado Medicine is set aside for reports of recent meetings, announcements of future meetings, and accounts of other important activities of the county and district societies, composing the Colorado State Medical Society. Every meeting of every local society should be reported. If your society is not represented, see that your secretary reports the next one, or that some other member is appointed to the task. Other societies want to know what your society is doing.

El Paso County Medical Society

Officers for 1930 were chosen by the El Paso County Medical Society at the annual business meeting Dec. 11. Dr. H. C. Goodson was elected president, Dr. F. T. Stevens, vice president; Dr. Z. H. McClanahan, treasurer; and Dr. W. A. Campbell, Jr., secretary. All elections are for the calendar year except that of the secretary, which is for three years.

Larimer County Medical Society

The regular meeting of the Larimer County Medical Society was held Dec. 4, 1929, at the College Cafeteria. Vocal selections were given during the dinner by members of the Tri Delta Sorority.

A paper "Conservative Obstetrics in the Modern Sense" was read by Dr. Gerrit Heusinkveld of Denver, concerning chiefly the modern treatment of pathological cases. Dr. K. D. A. Allen of Denver gave a short talk and exhibited x-ray films showing the relation of the fetal head and pelvis. Dr. C. H. Platz, Fort Collins, read a paper on "Meningeal Hemorrhage in the Newborn, Its Immediate and Later Effects." Discussion was opened by Dr. W. H. Gasser of Loveland, followed by Drs. Kickland, Cram, Cary, Hartshorn, Brown, Glover, and Little. The three authors closed the discussion.

Officers for 1930 were elected as follows: Dr. Fred Humphrey, president; Dr. M. J. Stewart, vice president; Dr. Lowell Little, secretary; Dr. C. E. Honstein, treasurer; Dr. C. E. Taylor, censor for three-year term. Dr. P. J. McHugh was elected delegate and Dr. S. A. Joslyn was elected his alternate, for two-year terms.

San Luis Valley Medical Society

The regular meeting of the San Luis Valley Medical Society was held at Alamosa, Nov. 20, 1929. A turkey dinner was served at the Silver Grill. Dr. C. A. Davlin and Dr. P. K. Dwyer were named to arrange a program for the next meeting to be held in Alamosa late in December.

By unanimous vote the Society is asking the Legislature to repeal House Bill No. 43, Session of 1929, which requires each physician to pay $2 annually as a special tax. The Society also voted unanimously recommending that the state liquor laws be made to coincide with those of the National Government.

Dr. J. R. Jaeger of Denver was the principal speaker of the evening, on "Injuries to the Skull and Its Contents."

Fremont County Medical Society

Dr. T. A. Davis was the principal speaker before the November meeting of the Fremont County Medical Society, Nov. 25, at Florence. Dr. Davis gave a detailed description of the Mayo Clinic at Rochester, Minn., which he recently visited.

Boulder County Medical Society

Three interesting papers were presented before the regular meeting of the Boulder County Medical Society held Dec. 12 at the Elks' Club, Longmont. Dr. J. W. Fonda presented "Some Health Observations of the Longmont Schools." Dr. F. R. Spencer read "The Importance of Sinus Disease to the General Practitioner." "Diagnosis and Treatment of Cutaneous New Growths" was presented by Dr. J. A. Matlack. The meeting was preceded by a dinner.

Garfield County Medical Society

A dinner meeting of the Garfield County Medical Society was held Nov. 29 at Rifle, Colo., with Dr. George M. Sands of Rifle as host. Members and their wives, thirty in all, attended. Dr. J. L. Cavanagh of Glenwood Springs was the principal speaker at the scientific session which followed the dinner.

Obituary

Dr James Allen Patterson

The El Paso County Medical Society lost one of its pioneers Nov. 27 in the death of Dr. James Allen Patterson. Dr. Patterson was a former president of the Society and for a score of years had been active in the work of organized medicine.

Dr. Patterson was born Nov. 29, 1859, in Salem, N. J. His father, Theophilus Patterson, was also a physician. He obtained his medical degree from Jefferson Medical College, Philadelphia, in 1882. In 1895 he moved to Colorado and obtained his license in this state. He had been a member of the El Paso County Medical Society for thirty years, and was also a member of the principal ophthalmological societies.

NEWS NOTES

AMERICAN COLLEGE OF SURGEONS' MEETING

The sectional meeting of the American College of Surgeons, including states of Colorado, Idaho, Utah and Wyoming, will be held in Denver, Jan. 27 and 28, 1930, with headquarters at the Cosmopolitan Hotel. The program will include clinics and demonstrations in Denver hospitals and scientific meetings by members from the above states.

The Fellows of the American College extend an invitation to members of the Colorado State Medical Society to attend the scientific meetings. Announcement of the program will be made later.

DENVER—Dr. Maurice H. Rees, dean of the University of Colorado School of Medicine, was re-elected president of the Colorado Hospital Association at the annual meeting in December. Dr. H. A. Green, medical superintendent of the Boulder Sanitarium, was re-elected first vice president. Mrs. Oca Cushman, Children's Hospital, Denver, was elected second vice president; Miss Bessie Haskin, Denver General Hospital, was elected treasurer, and Guy Hanner, Beth-El Hospital, Colorado Springs, was re-elected trustee. Frank J. Walter, St.

Luke's Hospital, Denver, was re-appointed secretary.

GREELEY—Members of the Weld County Medical Society and their ladies, several physicians from neighboring cities, and a number of lay guests were entertained the evening of Dec. 10 by the staff of Greeley Hospital at a banquet given at the Greeley Country Club.

THE DIPHTHERIA PROBLEM

The Health Section of the League of Nations has published a general review of the diphtheria problem. The infant, during the first six months of life, has a natural immunity to diphtheria, which probably is hereditary. In one clinic the diphtheria bacillus was found in 12 per cent of new-born babies. In 60 per cent of these cases the mother was found to be infected at the same time. The natural immunity that exists among tropical people (in the Philippines American investigators found a negative Schick reaction in as many as 80 per cent of the group examined) may be due to the same causes that produce immunity in the United States and in Europe, where epidemics among people living in overpopulated areas lead to the production of a "natural" immunity. While diphtheria is as severe in warm as it is in cold countries, and in the East as in the West, the mortality rate varies slightly among different races. The morbidity of diphtheria diminished considerably in the years preceding the discovery of antitoxin. Since then it has remained almost stationary in most countries and in the last two years has shown a tendency to rise. In the Netherlands, in 1885, the deaths from diphtheria were 50.2 per hundred thousand inhabitants; in 1895 they fell to 20.7. In Italy they fell from 95.2 in 1887 to 50.1 in 1894, and in France in towns of more than 5,000 people the incidence fell from 58.2 in 1889 to 38.1 in 1894. Thirty-two countries reported a total of 321,470 cases in 1923, and in 1928 about 399,000 cases. A number of other countries noted in this review had a decrease in the number of cases during this period. In the United States, the decrease has been almost continuous since 1923; in the year 1927, an exception, a sharp rise occurred bringing the cases up to 106,192. The diphtheria morbidity rate in Finland has gradually fallen and it has gradually risen in Belgium, but the aggregate number of cases has increased in both of these countries, as well as in France, Austria, England, Poland and Czechoslovakia. In Argentina the incidence of diphtheria began to fall in 1889. In the year that antitoxin was discovered (1895-1896) there was only a slightly higher morbidity than at the present time. The incidence of diphtheria has not therefore fallen generally and has risen in certain countries; but, on the other hand, the mortality has considerably diminished. In Norway, the mortality rate was 79.8 per hundred thousand inhabitants in 1894; by 1895 it had fallen to 25.2 and by 1896 to 17. It fell in the Netherlands from 33.2 in 1894 to 19.6 in 1896, and in the same period fell in Germany, Denmark, Scotland, France and Italy. The proportion of cases with paralysis in the last three years has been as high as 15.5 per cent in some hospitals. The sharp rise in the number of cases in most countries from October to January is remarkably constant, and as regular in countries where the winter is almost as warm as the summer. Some reason must be found other than the cold weather to account for this autumnal increase. In the last twenty-five years, two new conceptions have been introduced in the epidemiology of diphtheria; namely, the carrier theory, and the theory of natural immunity. In some schools where diphtheria has occurred, the proportion of carriers has reached 7 per cent, and among people engaged in diphtheria work in hospitals, 37 per cent. The proportion of carriers to the total population in England has been estimated at 4.6 per cent. The review by the Health Section of the League of Nations concludes that the effect of antitoxin on the mortality rate has varied in different countries, in some giving satisfactory results and in others unsatisfactory results. Active immunization may be accomplished by means of toxin-antitoxin, anatoxin or antimicrobic vaccines. The conclusion in this review is that the value of active immunization against diphtheria is undoubted, and that while the control of diphtheria mortality has had a partial check in the last few years it has now taken a new form, and the time is perhaps not far distant when lasting progress will be assured.—Jour. A. M. A., Nov. 16, 1929.

BOOK REVIEWS

Surgical Pathology. By William Boyd, M.D., Professor of Pathology, University of Manitoba, Winnipeg, Canada. Second Edition, Revised and Reset. Octavo of 933 pages, with 474 illustrations and 15 colored plates. Philadelphia and London: W. B. Saunders Company, March, 1929. Cloth, $11.00 net.

The increased interest in and the now extensive practice of surgical pathology should call forth several good books upon this subject. Dr. Boyd's book has been a rather valuable one, and the new edition is an improvement upon the earlier one. The addition of 125 illustrations is important as more can be told more easily and more clearly by supplementing text with good illustrations.

The contents of a book that deals with one part of a wider subject always offers difficulties to an author. Dr. Boyd has attempted to include not only strictly surgical pathology, but has included the entire field of pathology. Perhaps because of the high price of medical texts, this may be justified. The reviewer feels, however, that it would be far better for the surgical pathologist to spend as much detail as possible upon his subject and leave the subjects strictly not within his field to the general pathologists. For example, there are four illustrations allotted to syphilitic aortitis. This is unnecessary.

Several of the photographs of gross specimens could be easily improved upon and many of the diagramatic drawings should be replaced by good photographs.

All this, however, does not diminish the great value of Dr. Boyd's book, which should be of increasing importance to the surgical pathologist.

S. H. G.

ERRATUM

Through error the name of Dr. Harry A. Johnson, Fort Morgan, Colo., was omitted from the official membership roster of the Colorado State Medical Society, published in the December, 1929, issue of Colorado Medicine. Dr. Johnson is a member of the Morgan County Medical Society.

THE COLORADO STATE MEDICAL SOCIETY

OFFICERS, 1929-1930

President, William Senger, Pueblo.
President-elect, W. A. Kickland, Fort Collins.
Vice-Presidents, 1st, John B. Crouch, Colorado Springs; 2nd, Burgett Woodcock, Greeley; 3rd, Charles E. Condon, Leadville; 4th, E. H. Munro, Grand Junction.
Secretary, F. B. Stephenson, Denver.
Executive Secretary, Mr. Harvey T. Sethman, 466 Metropolitan bldg., Denver; telephone KEystone 0870.
Treasurer, L. W. Bortree, Colorado Springs.
Delegates to the American Medical Association: Senior, J. W. Amesse, Denver, term expires 1930; Alternate, L. H. McKinnie, Colorado Springs, term expires 1930; Junior, John R. Espey, Trinidad, term expires 1931; Alternate, J. J. Waring, Denver, term expires 1931.

Councilors:

		Term expires
District 1.	Ella A. Mead, Greeley	1930
District 2.	G. P. Lingenfelter, Denver	1934
District 3.	Geo. D. Andrews, Walsenburg	1933
District 4.	W. W. Crook, Glenwood Springs	1931
District 5.	A. J. Nossaman, Pagosa Springs	1932

Constituent Societies, Times of Meeting, 1929 Secretaries

Arapahoe County—Last Monday of each month; secretary, B. G. Carson, Englewood.

Boulder County—Second Thursday; secretary, Margaret Johnson, Boulder.

Chaffee County—First Tuesday of each month; secretary, G. W. Larimer, Salida.

Crowley County—Second Tuesday of each month; secretary, J. A. Hipp, Olney Springs.

Delta County—Last Friday of each month; secretary, Lawrence L. Hicks, Delta.

Denver County—First and third Tuesday of each month; secretary, C. H. Darrow.

El Paso County—Second Wednesday of each month; Secy., W. A. Campbell, Jr., Colo. Springs.

Fremont County—Fourth Monday of each month; secretary, R. Adkinson, Florence.

Garfield County—Last Thursday of each month; secretary, R. B. Porter, Glenwood Springs, Colo.

Huerfano County—Third Thursday of each month; secretary, J. M. Lamme, Walsenburg, Colo.

Kit Carson County—Quarterly, first Monday of December, March, June and September; secretary, Wm. L. McBride, Seibert, Colo.

Lake County—First Thursday of each month; secretary, J. C. Strong, Leadville.

Larimer County—First Wednesday of each month; secretary, Lowell Little, Fort Collins.

Las Animas County—First Friday of each month; secretary, M. C. Albi, Trinidad.

Mesa County—First Tuesday of each month; secretary, A. G. Taylor, Grand Junction.

Montrose County—First Thursday of each month; secretary, F. G. Didrickson, Montrose.

Morgan County—Last Monday of each month; secretary, E. R. Johnson, Fort Morgan.

Northeast Colorado—Second Thursday in each month; secretary, E. P. Hummel, Sterling.

Northwestern Colorado—Second Thursday of each month; secretary, F. J. Blackmer, Steamboat Springs.

Otero County—Second Thursday of each month; secretary, G. C. Gardner, La Junta.

Prowers County—First Tuesday of each quarter; secretary, Geo. S. Williams, Lamar, Colo.

Pueblo County—First and third Tuesday of each month; secretary, Amherst Merriman, Pueblo.

San Juan Medical—Second Saturday, January, April, July and October; secretary, H. A. Lingenfelter, Durango.

San Luis Valley—Fifteenth of each month; secretary, Sidney Anderson, Alamosa.

Weld County—First Monday of each month; secretary, Florence Fezer, Greeley, Colo.

COMMITTEES FOR 1929

Committee on Scientific Work: Maurice H. Rees, chairman, Denver; Crum Epler, Pueblo; C. Gillaspie, Boulder.

Committee on Credentials: F. B. Stephenson, chairman, Denver; John P. McDonough, Gunnison; C. A. Davlin, Alamosa.

Committee on Public Policy: W. H. Halley, chairman, Denver; Chas. N. Meader, Denver; C. F. Kemper, Denver; Harry S. Finney, Denver; L. H. McKinnie, Colorado Springs; L. E. Likes, Lamar; N. A. Madler, Greeley.

Committee on Publication: C. S. Bluemel, chairman, Denver; Wm. H. Crisp, Denver; George A. Moleen, Denver.

Committee on Auditing: E. D. Downing, chairman, Woodmen; George H. Noonan, Walsenburg; Edward P. Hummel, Sterling.

Committee on Necrology: C. S. Elder, chairman, Denver; G. C. Cary, Grand Junction; Lee T. Richie, Trinidad.

Committee on Medical Education: Edward Jackson, chairman, Denver; W. B. Yegge, Denver; O. M. Gilbert, Boulder.

Committee on Arrangements: Frederic Singer, chairman, Pueblo; R. H. Finney, Pueblo; Harold T. Low, Pueblo; George E. Rice, Pueblo.

Committee on Social Medicine: B. B. Jaffa, chairman, Denver; W. B. Hardesty, Berthoud: George H. Curfman, Salida.

Committee on Medical Literature: W. C. Finnoff, chairman, Denver; A. J. Markley, Denver, Gerald B. Webb, Colorado Springs.

Committee on Hospitals: Peter O. Hanford, chairman, Colorado Springs; R. W. Arndt, Denver; R. P. Forbes, Denver.

Committee on Military Affairs: George P. Lingenfelter, chairman, Denver; Paul M. Ireland, Pueblo.

Committee on Mental Hygiene: F. G. Ebaugh, chairman, Denver; C. S. Bluemel, Denver; Frank H. Zimmerman, Pueblo; Philip Work, Denver; H. A. La Moure, Pueblo; Frank T. Stevens, Colorado Springs.

Committee on Periodic Health Examinations: C. E. Harris, chairman, Woodmen; F. M. Heller, Pueblo; Lowell B. Little, Fort Collins.

Committee on Cooperation with State Pharmacal Association: A. M. Forster, chairman, Colorado Springs; M. C. Albi, Trinidad; Frank J. Blackmer, Steamboat Springs.

Committee on Cost of Medical Care: Maurice H. Rees, chairman, Denver; S. B. Childs, Denver; J. J. Waring, Denver; John B. Hartwell, Colorado Springs; George H. Curfman, Salida.

Committee on Industrial Commission Fees: William Senger, chairman ex-officio, Pueblo; Harold T. Low, Pueblo; John R. Espey, Trinidad; H. G. Garwood, Denver; Crum Epler, Pueblo; William H. Halley, Denver.

Committee on Finance: C. F. Hegner, chairman, Denver; H. R. McKeen, Denver; L. W. Bortree, Colorado Springs.

Curator of Exhibits: E. D. Downing, Woodmen.

Committee on Golf Tournament: H. T. Low, chairman, Pueblo; J. W. Thompson, Pueblo; F. F. Snedec, Pueblo.

WYOMING SECTION

President, C. W. Jeffrey, Rawlins — First Vice President, R. H. Sanders, Superior
President-Elect, E. L. Jewell, Shoshoni
Secretary, Earl Whedon, Sheridan — Treasurer, Evald Olson, Lovell
Delegate to the A. M. A., Geo. P. Johnston, Cheyenne — Alternate, J. H. Holland, Evanston
Councilors: C. Y. Beard, Cheyenne — H. L. Harvey, Casper — J. H. Goodnough, Rock Springs
Medical Defense Committee: Earl Whedon, Sheridan — Chester Harris, Basin — F. A. Mills, Powell

EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT

NOTHING DOING

On December 4, 1929, the Associated Press broadcasted over the country a story from Rock Springs, Wyo., to the effect that Dr. E. S. Lauzer of that city had discovered a cure for spinal meningitis.

Articles from one to two columns long appeared in the Denver Post, Cheyenne State Leader, Kansas City Star, Salt Lake Tribune, Sheridan Post, Billings Gazette and a great many eastern papers.

Such headlines as "Wyoming Doctor Claims Discovery Meningitis Cure—Hospital Experiments Give 100 Per Cent Recovery from Disease," "The Wyoming Medical Association Announces Dr. Edward S. Lauzer Effects Recoveries with Simple Discovery."

These are but a few samples of the publicity given by the Associated Press. What are the facts?

Dr. E. S. Lauzer is one of the well known members of the Rock Springs medical fraternity, and a member of the State Medical Society.

Last August he submitted a paper to the editor on his experiments, but as he had only tried this re-injection of the patient's own spinal fluid into the muscles on a few cases we returned it and asked him to continue its use and make a report with more cases as a basis of his paper.

In November we received this paper rewritten and reporting seven cases, some of which were still under treatment.

We were about to publish this paper even though the number of cases was entirely too small and controls were not used when the band broke loose. All over the country appeared the Associated Press story.

What hopes were started can only be estimated, but the editor has received telegrams and letters on this order:

"New York City: I read in the paper of Dr. Lauzer's discovery. I would like to have further information in regard to the discovery of a cure for cerebrospinal meningitis. A friend was hurt when he was three and one-half years old which developed into this disease. He is now twenty-eight and his left arm and leg are greatly affected.

"He has been to many doctors, so far none have given him relief, so am anxious to learn of his discovery. Yours truly, R. J."

The Wyoming State Medical Society has not announced any discovery of a cure for cerebrospinal meningitis.

Dr. Lauzer may have made a valuable discovery but it has not been tried on enough cases to call it a cure.

And as for statements such as: "A beneficial cure for cerebrospinal meningitis at last has been found, the primal fear of the scourge-like malady has permanently been removed and physicians may now approach stricken patients with no more alarm than might be occasioned by a so-called cold in the head," these statements are not warranted by the cases on which it was used.

Dr. Lauzer, over the phone, regretted the publication and said the reporter was to secure my consent for the release of the story. Such consent we never gave nor would ever give until the reported discovery had been tried by many, many cases and by other physicians in other parts of the country. If, in time, this treatment should prove of value, we shall be pleased to pub-

lish the facts.

It should be noted that in six out of the seven cases reported, Dr. Lauzer used the regular treatment by anti-meningococcus serums but added the re-injection of the patient's own spinal fluid, so that would only leave one case treated by his discovery alone.

On such a basis who would endorse such a treatment as a cure? E. W.

DR. HAROLD GIFFORD

On Thanksgiving morning there passed away, in Omaha, a great man, Dr. Harold Gifford, loved as few specialists have ever been, by patients and every doctor who knew him all over this Western country.

His standing among the medical men, his love of his home, of all little children, of Omaha and above all, his thoughtfulness and usefulness as shown in his years of service given so freely to the poor and needy, mark his life's accomplishments.

Generous in the extreme he, no doubt, was often imposed upon by those amply able to pay, yet never a word of complaint escaped his slips. He was a man of world-wide travel, and most interesting on all occasions. He had the happy faculty of making others feel perfectly at home and at ease under all conditions. Indeed that trait was the basis of his relations with the medical men of the West. No matter how busy he was he always had the time to explain and help other members of the medical profession in their troubles. A natural teacher yet he gave you the impression of a student always seeking new truths.

He was so intensely human that we all loved him. The delightful hospitality he extended was that characteristic of the West. He had a wife and family of which any man could be proud.

There was no show of wealth, but a sincere welcome in a home where every one felt at home, where conversation on most interesting topics, whether of medicine or of the beauties of woodland, of birds, of foreign countries, was most interesting and we love to recall him as he finished a plain but satisfying dinner, with small Spanish cigars, and as he walked and blew smoke rings and entertained with his delightful stories of foreign travel and research. You felt at home when in his home.

As an oculist he stood as a giant among oculists of the world, none surpassed him, and the medical world has lost a great man.

His many discussions and aids to successful treatment of eye diseases ought to be collected and given to the world in one volume for future generations. His work is not ended and the splendid clinic he organized will carry on for years to come the wonderful reputation it has as one of the outstanding clinics of America.

Fortunate was he in having two worthy sons to continue his life's work and doubly fortunate in his selection of able and honest assistants who shall continue along the pathways he blazed and although future ages will always remember him for his parks and woodlands given for the use of the common people, his life work was and shall be perpetuated by his loyal assistants and sons.

E. W.

FROM THE PRESIDENT

To the officers and members of the Wyoming State Medical Society: "Greetings."

As your president, I wish to extend to every member of our society "The Season's Greeting."

Another year is upon us, and first I would like to call your attention to the fact that last year we had 100 per cent membership over the previous year, and every member should voluntarily send his 1930 dues to the secretary, so as to make this year equal to, if not better than, 1929. Get those medical men who do not belong to associate themselves with the society.

Secondly, it is beholden upon each member of our society to assist the editor of the Wyoming part of Colorado Medicine to make that portion of the magazine most interesting and instructive. Therefore, promise yourselves to send some article of scientific

interest or news to Dr. Earl Wheden, Sheridan, by the tenth of each month to be published in the next issue. There is not a month goes by but something occurs in your neighborhood which would be of interest to the other members of your society.

"Make now a date" to be sure and attend the 1930 meeting at Sheridan, on June 14th and 15th.

In closing, I wish to state that Wyoming doctors are the most heroic medical men in this country; laboring against the vast distances, the many months of inclement weather and the separation from medical centers. Therefore, again, I say to you, "Greetings."

C. W. JEFFREY.

YOUR ANNUAL DUES, TEN DOLLARS, PLEASE

The constitution of the Wyoming State Medical Society requires that you pay ten dollars a year as annual dues. This payment should be made during the month of January in order to give you all the protection offered by the society.

Please pay the money to your local county secretary before the last day of January. To all members who are not members of a local society please send your dues to the secretary at Sheridan, Wyoming.

The arrangements made with the U. S. Fidelity and Guarantee Company for a group malpractice insurance results in the saving of your State Medical Society dues, but it is a term of the contract that a member must be in good standing in the Wyoming State Medical Society in order to receive this special policy with its lower fee, so be sure that you are in good standing and do not allow your membership to lapse. Last year the Wyoming society made a wonderful record, in that every man who was a member in the society in 1928 and was practicing in Wyoming in 1929 paid his dues into the state society. This year we want to repeat this record and add to the list of membership every reputable physician living in the state. Help us do it. E. W.

NEWS NOTES

SHERIDAN COUNTY MEDICAL SOCIETY

On December 6th the regular meeting of the Sheridan County Medical Society election of officers resulted in the following:

President—Dr. C. E. Stevenson.
Vice President—Dr. J. E. Carr.
Secretary-Treasurer—Dr. Earl Whedon.
Councilor, 3-year term—Dr. S. W. Johnson.
Councilor, 2-year term—Dr. Oscar Veach.
Auditing Committee—Drs. W. A. Steffen, Oscar Veach.

Joint meetings of the Sheridan County Medical Society and the staff of the U. S. Veterans' bureau No. 86 will doubtless be held this winter which ought to add a great deal of interest to these meetings.

Dr. R. E. Crane and wife have recently returned from an extended eastern visit.

CASPER, WYOMING

Dr. H. R. Lathrop has been in Chicago in one of the large hospitals trying to save a badly infected hand, which resulted from a slight scratch. The entire membership of the Wyoming society extend to Dr. Lathrop our best wishes for a speedy recovery.

SHERIDAN, WYOMING

Dr. W. H. Hassed, state health officer, was recently in Sheridan helping arrange, with the cooperation on the part of the Y. W. C. A. and the Sheridan County Medical Society, a series of infant welfare and pre-natal clinics. The expenses have been met by a donation from Mrs. C. Pardee Erdman, who is greatly interested in children's work.

NEW CURE FOR SLIPPING GARTERS

(From the Merchants' Index)

I was thin and run down. I had nervous spells, there were black spots in front of my eyes, my hair kept coming out and would not stay combed. I did not get enough sleep. My garters kept slipping down. Frequently in rainy weather, I could not find my umbrella. People stepped on my heels and my rubbers would come off. I felt dull after eating and frequently found it necessary to take a drink of water. Just before meals, I often felt weak and famished. I hated to go to bed at night, I disliked to get up in the morning, especially during cold weather when the fire in the furnace happened to go out. I hated even to split the wood for the kitchen stove. I felt cross when my wife's mother came to visit us and sometimes in the morning the coffee tasted like dishwater. Then a friend suggested, "Why don't you eat more sauerkraut?" I had never thought of it but I followed his advice. Now I can shave with a broken bottle and rub my face with cayenne pepper. My hair does not come out any more for the reason that the last of it had disappeared before I commenced the sauerkraut treatment. My vision is clear and my breath is stronger, I seldom stop to open the gate any more—I just jump the fence. Now I am the first in bed at night and the last to get up in the morning. For people whose heels are run down like mine were, I can cheerfully recommend sauerkraut.

GLUCOSE

FRED W. PHIFER, M.D.
WHEATLAND, WYOMING

Since the introduction of glucose into medical and surgical practice, much has been written, but not enough. Many lives have been saved by its timely administration, but more might have been.

It will contribute to the brevity of this article that no attempt will be made to discuss the use of glucose from a scientific point of view, chiefly because, since our material was compiled, this aspect of the matter has been brilliantly presented in a symposium on Acidosis, read before the Colorado Medical Society and published in the November issue of this journal.

We merely wish to present some of our own conclusions from results obtained in this clinic by the administration of glucose, with and without insulin, with and without sodium bicarbonate, with and without normal saline. However, the writer is frank to say that he has never been a believer in shotgun prescriptions or in mixing drinks; therefore, in this clinic, we prefer to give separate solutions rather than any of the above combinations. But in whatever form it may be given, we are convinced that the administration of glucose is a rational therapeutic measure of an importance that can scarcely be over-estimated.

In the somewhat extensive literature on this subject, we have been struck with two opposing attitudes. One author will imply that "this method is entirely devoid of danger"; and an equally reliable source will publish a study of the common causes of reactions that "manifest themselves by a sharp chill, usually considerable rise in temperature with shock and collapse, and even a possible fatality."

Our own attitude is that familiarity will by no means breed contempt. The more we use it, the more indispensable we feel it to be, but also the more we are impressed with the necessity for caution. In other words, we are, as yet, quite unable to feel it proved that there is no risk involved. In this clinic, we have a lively sense of its possible peril.

However, this aspect of the treatment brings to mind an occasion years ago when a surgical friend, in discussing a certain case, suggested that a hysterectomy was a hazardous undertaking; yet agreed with the reply: "Yes, but also it may be a simple operation in properly selected cases and with proper technique."

The truth is, of course, that few weapons in the physicians's armamentarium are without danger, but we do not, therefore, lay down our arms.

For this reason, we feel it all wrong to frighten off the general practitioner or the man doing a limited amount of surgery, since the administration of glucose is a most valuable aid when aid is most needed. Definite indications for its use may be ascertained under ordinary conditions; and its administration may be simplified.

The technique of its use, intravenously, is complicated and tedious. For this reason, we do not propose to discuss its detailed preparation and intravenous administration. We take it for granted that the practitioner who accepts this responsibility is already aware that he must insure that the raw materials are chemically pure, that percentages are accurate, that the water used is triply distilled (using three separate stills of which at least two are glass) under the most exacting conditions; that it is filtered and free from air contamination; that it is sterilized under test conditions, and that it is freshly prepared in every particular.

The apparatus used in its intravenous administration must also be meticulously prepared. You may say that this should be true for all intravenous medication, and that is correct; but in this particular instance, it is held that even so minute a detail as the kind and age—or lack of age—of the rubber tubing may make a difference.

We, therefore, advise the surgeon who does not have absolute control of every step of the technique of preparation and administration to forego the use of everything

except the prepared ampules put up by a reputable manufacturer.

In this clinic, the use of glucose in ampules is confined to those cases, where we desire the good effect of glucose, but consider that the patient is not in need of additional fluids.

Even though dehydration is a part of the clinical picture, if the administrator has the slightest question in his mind concerning any technical detail of the intravenous administration of the needed fluids, we strongly advise that hypodermoclysis be chosen as the method of administration. A 5 to 10 per cent or even a 25 per cent solution may be given sub-cutaneously or intramuscularly or, in children, intraperitoneally, with marked benefit in many cases.

In this clinic, a routine measure is the administration to all surgical cases, while still in the operating room, of a solution by rectum. This consists of ordinary tap water, containing 5 per cent glucose and 2 per cent sodium bicarbonate, at a temperature of 105°, given slowly. Three to five pints is the usual adult dose, requiring five to ten minutes' time. If there is a slight failure of retention, the rate of administration is lowered; or, if there is a definite return of the fluid, it is discontinued. At least 98 per cent of our adult patients retain four pints without difficulty. We formerly gave a still larger quantity, but have discontinued this, as with the abdomen open, we have seen that about three pints is readily absorbed from the colon, being taken up almost as fast as it is administered; but larger amounts cause distention, that may be unwise in itself, and may also cause a discharge of so much of the fluid that less than three pints is in the end retained.

We said that this measure was routine with all major surgical patients, but we will have to retract this statement.

We do not use it, following rectal operations or perineal operations. It does hold good, however, in the majority of our obstetrical cases, as the slight distention does them no harm, and these patients usually sleep rather profoundly for a period of at least two hours after the birth of the baby.

Another exception is the class of cases that have been given spinal anesthesia, as the fluid will not be retained by rectum. This is probably also true to a lesser extent where a straight ether anesthesia is used. We are not prepared to make a positive statement on this point, for it has been many years since we substituted some other anesthetic for the routine use of straight ether.

We wish to make it clear that this solution per rectum is given in the operating room while the patient is still asleep. We do not favor the drop-method of proctoclysis, the so-called Murphy drip, as a routine post-operative measure, because in most instances the fatigue and annoyance, both physical and mental, to the patient overbalance most of the gain; but more especially because the rectum and colon are not easily tolerant to glucose.

For this reason, we note a still further and most important exception to the administration of our post-operative proctoclysis; namely, cases complicated by peritonitis. We desist from any rectal interference in peritonitis cases, or where we wish to keep the intestinal tract absolutely quiet. This especially applies to glucose by proctoclysis.

In passing, it may be worthy of remark that in giving repeated intravenous injections of glucose, one of the difficulties with which you may have to contend is a rather intractable diarrhoea. And if you wish to get real lower bowel stimulation, give a 25 per cent glucose solution intravenously and you may be surprised at the results. In this connection we might also mention that glucose is so poorly retained by the rectum that a 10 to 25 per cent glucose enema is our most relied upon method of clearing out a static lower bowel. One may use ordinary Karo corn syrup for making this solution.

The administration of glucose, preferably by the intravenous route, is used in this clinic as a routine measure following major surgical operations, unless contra-indicated. It is repeated as often as may be required, the length of time that it is kept up and the

amounts depending entirely upon the smoothness of convalescence. In some cases, we have kept it up for many weeks; in others, it is discontinued just as soon as the patient can safely take a sufficient amount of fluids by mouth. In still others, it may have to be discontinued on account of too active stimulation of peristalsis and diarrhoea.

In some cases, the first dose is given in the operating room. In ordinary cases, the rectal administration is usually sufficient to control thirst and nausea for the first few hours, especially as most of our patients are not wide awake for a period of from two to eight hours. If restless at the end of four to six hours glucose and normal saline are administered, with marked comfort and satisfaction to the patient.

In the past, we have used a 5 or 10 per cent glucose in a normal salt solution, the dose varying from 200 to 1,000 c.c. at each injection, the average adult dose being about 800 c.c. More recently, we have thought best to give these preparations separately, varying the amount of the solutions with the demands of the case. This enables us to give our glucose in a concentrated form, repeating the dose, if necessary, once or twice within twenty-four hours, as may be indicated, since in concentrated form it is evanescent in effect, being largely eliminated within two to three hours.

In many instances, we are partial to the volume of a less concentrated glucose preparation; but we have found that the technique necessary in preparing a safe glucose solution is both complicated and tedious, and must be repeated at frequent intervals in order to keep the solution always fresh and ready for administration. For this reason, during the past six months, we have found it simpler in many instances to use the large ampules of a concentrated glucose preparation, manufactured in bulk, tested and dispensed in sealed ampules. A 50 c.c. injection of a 50 per cent solution is given, with needles of 20 or 22 gauge. The temperature of this solution should not be below 100 nor above 110° Fahrenheit, and should be given slowly. In fact, the longer the time spent in its administration, the more lasting are the effects therefrom.

Many authorities employ one unit of insulin for every two grams of sugar in their solutions. This seems a safe procedure, but we have not found the routine use of insulin necessary. Aside from the cases where it is especially indicated, we add it only when sugar appears in the urine. Bicarbonate of soda is added only where there is a definite indication of acidosis that has not yielded to glucose and normal salt administrations.

During the previous nine months, we have administered glucose intravenously to 382 patients. Of these, twenty had but a single dose, and fourteen had two doses. The great majority ranged from three to six administrations. Three had seven, four had eight, two had ten, one had eleven, two had twelve, one had fifteen, one had seventeen glucose plus eleven plain saline, one had twenty, one had thirty-three. During other periods, we have had a number of patients to whom we have given between thirty and forty administrations, though some of these were normal saline without the glucose addition. In this series of administrations, we had six reactions, of which four were severe.

We have an extremely interesting case just now, making a satisfactory recovery, the credit for which we attribute to glucose. This patient, after three months of an acute illness with gall bladder infection and stones, was brought to this clinic five weeks ago in an almost moribund condition, but with a view to operation. She was definitely jaundiced, and required morphine several times daily to keep her comfortable. Gastric disturbance interfered with the proper nourishment by mouth, so all stomach feedings were discontinued, and daily intravenous administration of glucose and saline was begun, hoping that we might bring this patient into the realm of a safe operative risk.

The patient showed marked improvement with an occasional exacerbation of her gall-bladder pain. It was rather interesting to note that this patient very quickly realized the good that she was deriving from these

intravenous administrations, and any time one was omitted our attention was called to the fact by the patient. This was superfluous, however, for it was also promptly called to our attention by the laboratory and by the attending physician, who would note a prompt return of her unfavorable symptoms.

Almost two weeks ago, we decided that her improvement had reached the peak, and that the opportune time for operation was at hand. We found an abscessed gall bladder that had ruptured, but that was walled off by adhesions. Twenty-six facetted stones, the size of hazel nuts were removed. Some of these were in the common duct. Some had ruptured through the wall of the gall bladder and were lying just under the skin in the area of the incision. The patient stood the operation fairly well.

Since operation she has continued to receive her daily allowance of glucose, and at any time that sugar appears in the urine, she is given insulin: one unit for every two grams of glucose. She has had no nausea or vomiting, and bids fair to make a complete recovery.

In this series of 382 cases, some of the indications for which the glucose was given may be enumerated as follows:

Routinely, following surgical measures, to prevent shock, acidosis, thirst, nausea.

In gall bladder cases, pre-operatively and post-operatively, to supplement the impaired liver function, and to support the patient until gastric irritation could subside, in addition to the usual post-operative indications.

In gastric and duodenal ulcer, pre-operatively and post-operatively.

In ruptured appendix cases, with extensive suppuration and drainage, a life-saver of major importance.

In intestinal stasis.

In duodenal fistula.

In severe and extensive burns, to combat toxemia as well as shock. It is of major importance in these cases.

In diabetes, given with insulin.

In the dehydration of children, especially after intestinal infection.

In pyloric stenosis in infants.

In shock or fall of blood-pressure in cranial injuries, and in operations on brain and spinal cord.

In collapse or fall in blood pressure from other causes.

In hemorrhage.

In uraemia, from kidney lesions, where salt solution is definitely contra-indicated.

In cases of delayed or impaired kidney function, in old prostates. In these cases, the glucose was used in bulk with normal saline, or the normal saline was used independent of the glucose.

In toxemia pregnancy.

In hemorrhage and toxemia of childbirth.

In new-born babies, for malnutrition, inanition and acidosis.

Sex instruction for children

A very sensible discussion of this subject took place at the recent conference of the National Council of Mental Hygiene in London. Books and leaflets were found to be usually far too sentimental and personal. A child is never shocked when it is given information simply in response to an inquiry, but may very easily be shocked when given information that is unsought. It is thus desirable that parents be prepared emotionally and intellectually to answer questions about sex in the proper way. But how far from this ideal is the average adult? Mrs. Neville Rolfe told the story of a university woman who started a chicken farm and mixed all the breeds together in the runs: "Oh, it's quite all right," she said, when questioned, "I always separate them at night." The first step is to train teachers. At the same time it is important to create a favorable atmosphere in the home. Parent-Teachers' Associations have many opportunities to bring about a better understanding of this important subject among the laity.

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EDITORIAL NOTES AND COMMENT

PHYLAXIS-ANAPHYLAXIS

The State Medical Society is to be congratulated for having secured at its last meeting a speaker, Professor Charles Richet, Jr., who has won honor as an original investigator in what is perhaps the most important and most promising field of medical advance.

The name of Professor Charles Richet, the father, at least, will live as long as there remains a science of immunology. He, it was, who first carefully investigated a phenomenon of biological reaction which had but recently been discovered by Theobald Smith. It had been found that guinea pigs which had been inoculated with a native protein, foreign to their own bodies, gradually underwent a constitutional change, which, though presenting no external evidence, made the animal specifically sensitive to a second inoculation of the same foreign protein when this was given at a period, exceeding about two weeks, after the first. The response of the animals to this procedure was practically immediate and consisted in the development of convulsions, often ending in death within five minutes.

Richet, senior, characterized this phenomenon as anaphylaxis from a Greek etymology signifying "lack of protection, defenselessness."

This observation, combined with those previously made by Pasteur on the experimental attenuation of virus-virulence, furnished the wings for independent flight to the science of immunology.

And the study of Immunology is, as Huxley said of physiology, "in itself an education broader and deeper than much that passes under the name."

It is probably well within the truth to assume that manifestations of immunological reaction meet us every day and fail of etiological recognition. Bronchial asthma and hay fever are but words of one syllable in a long and momentous document.

Let the pediatrician compare in parallel columns statistics of infant mortality with the date of food anaphylaxis—and think.

The writer has a growing suspicion that many cases attributed to "acidosis" have their key in immunological revolt against definite food principles. A few months ago a man in the fifties with pulmonary tuberculosis, ate freely of watermelon at supper. After midnight he suffered from cramps, vomiting and diarrhea. Seen by his physician next morning the diagnosis of acute appendicitis was made provisionally but later sufficiently established by leucocytosis and the clinical course.

For satisfactory reasons, operation was not urged. Recovery was uneventful. Now, for at least two years that man had manifested no sign or symptom of appendicitis, and he declared that this was his first attack. But interrogation elicited the statement that he was very fond of watermelon and that in his Southern home he commonly suffered from an attack of diarrhea at the beginning of the watermelon season.

There is scarcely a doubt that many of us have, possibly few escape, what Professor

Richet calls "chronic anaphylaxis." The case just cited suggests an etiological relation between such a condition and acute organic appendicitis. What a maelstrom of biological troubles confronts the clinician at every turn!

Many years ago the great Russian physiologist, Pavlov, is said to have expressed the idea that every variety of food stuff required in its digestion a specific form of enzyme, and that when a particular food was omitted from the diet the manufacture of its particular ferment gradually ceased.

Such possibilities as this must be taken into account in explaining "acute indigestion."

A man reared in a sea-food eating community on the eastern coast moved to Colorado. His annual visits to the sea coast were, after the first few days, invariably marked by a week or so of debilitating intestinal disorder. Only after many such experiences did he suspect an anaphylactic for the attack's origin. Adopting strict temperance in the use of sea foods, their ingestion every second day only for the first week, the untoward symptoms failed to appear. But not before a dramatic experience resulted from a temperate eating of fresh lobster on three successive days. Soon after the first meal ill-defined but steadily increasing symptoms culminated in the onset of a bloody dysentery that compelled bedrest for two weeks.

It is worth noting that though an allergic or hypersensitive state may be temporarily abolished, "desensitized" or made "anti-anaphylactic" by small doses at proper intervals of any chosen antigen, in larger doses at shorter intervals the procedure may be disastrous.

A real and most pestiferous obstacle to the diffusion of a knowledge of immunology is its nomenclature; and for this the immunologists themselves are to blame.

"Immunity" in technical literature may describe the state of one animal that is highly anaphylactic toward a given protein or of another that is strongly resistant against it.

What is really known in immunology can be practically understood by anyone fit to practice medicine. Blessed as is our refuge in exact science, its doors are mostly closed.

The disorders that we must treat are replete with hints, or indeed evidences, of immunological reactions. He will not be held guiltless who ignores the data within the grotesque term "Immunology." H. S.

THE INFANT MORTALITY STUDY

The discovery of Denver's unenviable position among twenty-five large cities of the United States in regard to infant mortality and maternal mortality in child birth, the prompt decision of the Public Health Council to investigate the causes of this state of affairs, and the implementing of their decision by the generosity of the May Company and the Laura Spelman Rockefeller Foundation constitute the outstanding medical news of the past month. The detailed account of these affairs will be found on page 56. We refer to them here in order to emphasize the paramount contribution that must be made to this research by the medical profession of Denver in order that it may be made successful. However skillful in statistical analysis, Professor Kaplan and his colleagues at the School of Commerce of Denver University cannot extract accurate conclusions from the collected data unless the data themselves are accurate. For the purposes of statistical analysis the number of infant deaths in Denver is not large, and it is, therefore, of the highest importance that the cause of every death and the circumstances surrounding that death shall be truly and accurately recorded. The information given on the death certificates will be the most important information with which the investigators will be concerned. We feel confident that Denver physicians will spare no pains to make it reliable.

They may also contribute greatly to the success of this investigation by turning in promptly certificates both of birth and of death. Human memory is fallible, and the sooner investigating nurses can be brought

in contact with the home, the more accurate will their contribution be. Finally, obstetricians may greatly ease the work of the investigators if they will explain to parents the object of the investigation which is being carried on from February 1, 1930, to February 1, 1931, lead them to expect a call from the Visiting Nurses' Association, and urge their co-operation in the interests of public health and of the good name of Denver.

We know that many deaths take place in Denver, deaths both of mothers and of babies, that are not properly chargeable to the city. It is entirely possible that a successful research will show that our record is far more creditable than the crude figures would lead us to suppose. On the other hand, it is also probable that sources of unnecessary loss will be disclosed, so that in the future valuable lives will be saved as a result of new knowledge. Whether it be flattering or whether it be instructive, we want to know the truth.

THANK YOU, WYOMING

May we call the attention of Coloradoans to the invitation on page 67 extended to our State Society to join themselves to the group of societies representing the Rocky Mountain States that will hold its second Yellowstone Park meeting in 1933? For our part we deeply appreciate the editorial gesture of our Wyoming colleague and beg for his suggestion the most serious and sympathetic consideration of the Colorado House of Delegates at its next annual session. The collaboration of the mountain states in solving the special medical problems that confront them can be fraught in our judgment with nothing but good.

HOSPITALS SHOULD BAR CULTS

Hospital boards of control should by this time be thoroughly familiar with the decision handed down in November by the Colorado Supreme Court, which held that adherents of the schools of practice we have called cults have no constitutional right to practice in state, county, or municipal hospitals. The ruling grew out of an appeal taken by R. W. E. Newton, licensed osteopath, from a decision of the board of county commissioners of Weld county that had excluded him from the Weld County Hospital.

The physicians of Weld county are the immediate beneficiaries of the court decision. But it should be borne in mind that scientific medicine throughout Colorado benefits equally in the end. Hospital boards of control, where they include members of the Colorado State Medical Society, should make immediate use of this decision. Where such boards consist solely of laymen, members of the profession should take it upon themselves to see that the board members are aware of their power to protect the general public from questionable practitioners.

It should be appropriate to repeat an important paragraph of the Supreme Court decision:

"A physician has no constitutional or statutory right to practice his profession in a county hospital. The county board has complete supervision and control of county hospitals in this state. A regulation excluding from the county hospital, or the right to practice therein, the devotees of some of the numerous systems or methods of treating diseases authorized to practice the profession in Colorado is neither unreasonable nor arbitrary." H. T. S.

Second international congress for sex research

The First International Congress for Sex Research was held in Berlin in October, 1926. Only a small delegation was present from this country. It is hoped that the second congress will be more important, both in respect to the numbers attending, and to the quality of the papers presented. The meeting is to be held in the House of the British Medical Association, Tavistock Square, London, from August 3 to 9, 1930. Particulars may be had by communicating with the president of the congress, Professor F. A. E. Crew, The University, West Mains Road, Edinburgh, Scotland.

FOOD ANAPHYLAXIS*

CHARLES RICHET, JR.
Professor Agrégé à la Faculté de Médecine
PARIS

Anaphylaxis is a conception born of certain broad experiments. A group of four phenomena results from these experiments:

(1) General anaphylaxis, or the phenomenon of Charles Richet-Portier;
(2) Local anaphylaxis, or the phenomenon of Arthus;
(3) The anti-anaphylactic phenomenon of Besredka;
(4) Food anaphylaxis.

I do not regard anaphylaxis and allergy as being synonymous. Allergy, or the Von Pirquet phenomenon, includes phenomena both of hypersensitivity and of immunity; whilst anaphylaxis is simply hypersensitivity. However that may be, there are, at the present time, a series of clinical manifestations recognized as being proper to anaphylaxis (or to allergy). These are: serum sickness, hay fever, most of the so-called toxic eruptions, cases of asthma, etc.

History

Rosenau and Anderson were the first to show the possibility of food anaphylaxis. They fed normal guinea pigs with dried horse serum and found that several weeks later they were anaphylactic to this serum. Then came the experiments of Professor Richet with a toxin "crepitine and then the experiments of Wells and Osborne with some vegetable proteins were published just at the same moment. At about this time the clinicians were studying accidents occurring in anaphylactic subjects to such effect that in a book which is now old I was able to disinguish anaphylaxis major (grande anaphylaxie) from anaphylaxis minor (petite anaphylaxie). I was able also to describe chronic anaphylaxis which is becoming more and more important.

Etiology

All foods may provoke anaphylaxis: meats, fish, crustacia, molluscs, vegetables, fruits, etc. Three foods, however, are of major importance: milk, especially in infants; eggs, especially in children from 4 to 15 years; flour, especially in adult life. One etiological feature is particularly curious. A subject anaphylactised to a given substance may be anaphylactic to this substance only. The anaphylaxis is specific. But in numerous other case the anaphylaxis is not strictly specific, there being a group anaphylaxis, just as there may be group agglutination.

Experiment, taking as type the food anaphylaxis induced by the i ngestion of eggs, has shown us this: it is necessary (1) to give to the animals that are to be sensitized by the digestive route large quantities of eggs—one whole egg daily mixed with their food. If only one-quarter or one-third of an egg is given, failure will frequently result. (2) It is necessary to wait from twenty to thirty days before attempting to find out whether the animal is sensitised. (3) The detonating injection (injection dechainante*) given under these conditions will frequently kill the guinea pig.

A certain number of conditions favor this anaphylactic state: slight lesions of the liver, and also slight intestinal disturbances. The experiments determining this were made by Arloing of Lyons.

The clinical study of food anaphylaxis is difficult for the symptoms are very varied. However, they have certain common characteristics. Manifestations observed in the course of food anaphylaxis are similar to those found in other anaphylactic states. Nevertheless, digestive disturbances are more common. In the same subject, given the same food, the symptoms are nearly always of the same kind. Usually the symptoms appear promptly. This is not the case in chronic anaphylaxis.

There are three broad divisions of food anaphylaxis: Anaphylaxis major, anaphylaxis minor and chronic anaphylaxis.

Anaphylaxis major is rare. From the out-

*Translated from a summary prepared by Professor Richet of his address to the Colorado State Medical Society on September 5, 1929.

set it appears serious and death may result. It is found most commonly in infancy. General disturbances then dominate the picture: facial pallor, rapid pulse, raised temperature, and syncope. Associated with these will be found abdominal disturbances: pain, vomiting and diarrhoea. The onset is brusque, the evolution rapid, whether towards death or recovery. Though recovery is the more frequent outcome, the prognosis is always serious, for, unless particular attention is paid to the food, death may follow a subsequent attempt at feeding.

Anaphylaxis minor, or lesser anaphylaxis, is infinitely more common. It comprises many clinical types whose symptoms may be associated one with another. These are the clinical types:

(1) Gastro-intestinal, with three major symptoms: abdominal pain, vomiting, and diarrhoea, which may or may not be bloody, with or without mucus;

(2) Cutaneous, wherein are found either singly or in association; eczema, prurigo, urticaria, Quincke's disease, and angioneurotic edema;

(3) Respiratory, occasionally with spasmodic rhinitis, sometimes with laryngeal symptoms, but most frequently with asthma;

(4) Nervous, including certain important manifestations that deserve special mention; namely, migraine (and especially ophthalmic migraine) and epilepsy, which certain observations have shown to be sometimes anaphylactic.

Chronic anaphylaxis, which has been more especially the study of the present writer, is not yet well known. It is characterized by the length of its duration. From time to time an acute exacerbation emphasises its manifestations. It may assume the nervous type (persistent headaches), the cutaneous type (chronic eczema), the pulmonary type (asthma without remission), but generally it is the digestive type, appearing either as a dyspepsia or more frequently as a colitis, muco-membranous in character, but often simulating cancer of the colon.

Diagnosis

The diagnosis is determined by the clinical signs. Though the digestive or nervous manifestations are in themselves of little diagnostic significance, their association with an attack of asthma or with a skin eruption is of much greater significance. Interrogation of the patient may be of much help. Finally there are certain biological tests of the utmost importance. These tests, although numerous, are not all of equal value. Passive anaphylaxis is seldom used. Hemoclasis is not specific. The skin reaction or the intradermal test are those commonly employed. The skin reaction is the simpler. The intradermal reaction, though more sensitive, is capable of giving rise to undesirable reactions unless used with great care. The American allergists are, however, past-masters in the art of cutaneous and intradermal tests. I will not now insist on the low proportion of positive findings. I estimate out of 100 food-anaphylactic patients sixty will give positive skin reactions to the food which they are unable to bear.

I have already insisted on the possibility of remote sequelae to skin reactions. I observed this year a soldier who was anaphylactic to haricot beans. I made a skin test on this man with haricot bean and twelve hours afterwards he was seized with a sudden diarrhoea that had all the characteristics of the diarrhoea which had followed ingestion of the vegetable.

Finally, in order to discover the harmful food, the patient may be put on the eliminative diet, a system devised by Albert Rowe of Oakland. This procedure is doubly valuable, since it serves at once for diagnosis and treatment.

Pathogenesis

The pathogenesis must vary, so it seems to me, in different cases. Sometimes it is a case of local anaphylaxis (Arthus phenomenon). This is the case when vomiting follows immediately upon the ingestion of a harmful food. In most cases we are concerned with a general anaphylaxis. Normally a whole series of defense lines prevent proteins from passing into the organ-

ism as such. First the digestive ferments break down the large molecules of protein into numerous peptides and amino-acids. The intestinal barrier prevents the large molecules from penetrating the organism. The hepatic barrier again holds up protein material. But if all these barriers, digestive, intestinal, hepatic, fail, then the anaphylactic state may appear. Will it invariably make its appearance? No, for to become anaphylactic the subject must be "predestined"; one cannot become anaphylactic at will. It seems to me that the role of vago-sympathetic tonus is considerable. This tonus is partly under the control of the glands of internal secretion and particularly the thyroid.

Treatment

The treatment of food anaphylaxis is at once symptomatic, etiologic and pathogenic. I will not now dwell on the symptomatic treatment of asthma, urticaria, etc. Do not forget, however, that in the treatment of majos anaphylactic symptoms, adrenalin, and to a less extent ephedrin, constitutes remedies that are almost specific. Etiologic treatment is important and difficult to apply. The first necessity is to withhold the harmful food, as far as possible, and then to apply the antianaphylactic treatment indicated by the experimental work of Besredka. One method consists in giving an antiana phylactic meal one hour before the main meal, including in it each element of the main meal but in small quantity (one gram of bread, one gram of ham, and one gram of potatoes, if the meal is to consist of bread, ham and potatoes). This small meal is not, however, very practical. Then one to two grams of peptone may be given one hour before each meal. This method is excellent, but the antianaphylaxis obtained only lasts for a few hours.

At the present time a progressive immunization is sought in the following manner: a child who is anaphylactic, let us say to milk, is given one-third of a drop the first day, a whole drop the second day, two drops the third day, and so on. This immunization by the buccal route has seemed to me to be preferable to that by subcutaneous injection.

Finally treatment will be pathogenic. Digestive ferments will be given in case these are insufficient. Atropine or ephedrine will be given to lower the tone of the vagus or stimulate that of the sympathetic. Autohemotherapy also will be used, being easier to handle than auto- or isoserotherapy. Five c. c. of blood are withdrawn from the patient's vein and are injected at once under the skin of the thigh. Two days later seven c. c. will be injected, then nine c. c., and so on.

Conclusion

Food anaphylaxis is a common affection, comprising many different aspects. Its treatment is delicate work and demands the collaboration of doctor and patient. Generally regarded food anaphylaxis is the best safeguard that we possess for the protection of our humoral personality, for we have humoral as well as a psychological personality. If it is disturbed by the presence of heterogenous albumin it reacts with violence.

TICK-BORNE INFECTIONS IN COLORADO*

I. The diagnosis and management of infections transmitted by the wood tick†

FREDERICK E. BECKER, M.D.
DENVER

It has been estimated that from 250 to 500 cases of Rocky Mountain spotted fever occur each year in the northwestern part of the United States with a mortality rate varying from 4.9 per cent in Idaho to 40.3 per cent in Montana (Spencer)[1]. In addition it has been shown conclusively that the two diseases, tularemia and tick paralysis, may be transmitted to man by the wood tick, and there are probably still other infections that may follow the bite of this parasite.

†Read before the meeting of the Colorado State Medical Society at Greeley, September 3 to 5, 1929.

*From the Department of Pathology, University of Colorado School of Medicine.

The United States government recognizes tick-borne diseases as a major health problem and is annually providing large sums of money for the purpose of investigation and control; but, with few exceptions, the states in which these infections are endemic do not seriously concern themselves with this situation.

Colorado shares this lack of interest, although tick-borne diseases are very prevalent in this state. If a case of typhus fever should be discovered in Colorado the medical profession would immediately demand drastic measures for control, but no program for prevention has been instituted against the closely related disease, Rocky Mountain spotted fever, which has been endemic in this state for many years with a relatively high morbidity and a high mortality rate; and Colorado physicians have not been sufficiently aroused to this menace to the public health.

Clinically the following five symptom complexes can be ascribed to the bite of the wood tick in Colorado: (1) Typical Rocky Mountain spotted fever, (2) "Colorado tick fever", (3) Local infection, (4) Tularemia, and (5) Tick paralysis.

Rocky Mountain Spotted Fever

Rocky Mountain spotted fever is the most serious of these because of the severity of symptoms, long disability, and high mortality rate.

Definition: "Rocky Mountain spotted fever is an acute specific, non-contagious, tick-borne disease endemic in the northwestern part of the United States. Clinically, it closely resembles typhus fever and is characterized by an onset with chill, continued fever, severe headache, pains in the bones and muscles, and a macular and sometimes maculopapular eruption which appears about the third day of fever, first on the wrists, ankles and back, and then over the whole surface of the body" (Spencer[1]).

Incubation period: The incubation period varies from four to seven days. Since the tick may remain in the clothes for several days before it becomes attached, the time between an outing in the mountains and the onset of illness may be still longer.

Symptomatology: The fever rises rapidly after an initial chill and soon reaches a height of 104°-106° F., and with slight morning remissions remains high until the eighth to fourteenth day, when it drops by lysis. Pain in the head, back, joints, and muscles is very severe, as in the early stages of smallpox, but later this becomes somewhat dulled.

The skin eruption, which is the most characteristic physical finding, is profuse, macular or maculo-papular, with ill-defined borders, at first rose-red but later dusky red and then purplish; the petechial spots may become confluent and a true necrosis of the skin with sloughing may occur. Appearing on the third to fifth day of illness, first on the wrists and ankles, then over the shoulders and back and then over the whole body, the rash remains throughout the disease, and may be faintly seen for many months after recovery when the skin is chilled. The conjunctivae are always injected. Restlessness, later marked delirium, and in fatal cases coma are the rule, and more or less permanent nerve lesions are occasionally noted. Some irritation in the bronchial tree usually produces a dry, hacking cough and bronchopneumonia may develop. The pulse is at first slow and strong. When it becomes rapid it is a bad prognostic sign. Anorexia is almost always present, vomiting not uncommon, constipation is usually severe, but we have seen several cases with diarrhea, bloody stools and incontinence of bowels. Figs. 1 and 2 are photographs of a patient from Salina, Colorado, who died June 21, 1929, on the nineteenth day of his illness. The photographs, taken on the fourteenth day, show the eruption well developed on all parts of the body. The patient survived the acute stage of the infection but died of an edema of the glottis and of myocardial failure.

Laboratory procedures: For the study of this disease and for diagnostic aid in doubtful cases the following laboratory procedures are available:



Fig. 1. Typical case of Rocky Mountain spotted fever with well developed eruption. Patient died June 21, 1929, in Salina, Boulder Co., Colorado.

Examination of the blood: The blood picture is not sufficiently constant to be of great diagnostic value. The hemoglobin and red cell count are reduced in the later stages of the disease. The white cell count varies widely according to different observers. Spencer[1] gives the following figures: 8,000-10,000 during the first and 15,000-18,000 during the second week. Wolbach[2] says that a relative mononucleosis is the most striking feature of the blood picture. The blood is usually very dark, viscid and the clotting time is markedly shortened. The demonstration of the causative micro-organisms in blood smears is so inconstant that it does not repay the effort of the search. Blood cultures have been negative in the hands of most workers; however, Kuczynski and co-workers[3] report the culture of rickettsia in both typhus and Rocky Mountain spotted fever and they believe that these micro-organisms are a variant of B. proteus X_{19}.

Examination of the urine: The urine, as in other high fevers, is concentrated and usually contains varying amounts of albumin and acetone. Hyaline and granular casts are sometimes found.

Animal inoculations: Guinea pigs, rabbits and monkeys may be inoculated intraperitoneally or subcutaneously with whole or citrated blood from patients or with an emulsion of the viscera of the attached tick. In successful inoculations fever develops in from forty-eight to seventy-two hours and in virulent infections the animals die in from five to nine days. The gross lesions consist chiefly of inflammation of the genitalia. Microscopically an endarteritis is seen, with occlusion by endothelial cell proliferations, infarction, hemorrhage and necrosis. If the animal recovers, immunity is produced.

Demonstration of rickettsia: In autopsy material as well as in experimentally infected laboratory animals Wolbach[2] has described a gram-negative, pleomorphic, intracellular, rickettsia-like organism as the causative agent of Rocky Mountain spotted fever and has named it Dermacentroxenus rickettsi. In the lesions of guinea pigs infected with a Montana strain of the Rocky Mountain spotted fever virus we have found

similar organisms (Figs. 3 and 4). They are seen clumped in the walls of small vessels, usually in the endothelial cells, but also in the smooth muscle fibers.

Examination of ticks: The vector commonly responsible for the infections in this state is the wood tick, Dermacentor andersoni (Stiles), common throughout the Rocky Mountain region. Other ticks have been infected artificially: Dermacentor variabilis (Say) and Dermacentor parumapertus marginatus (Banks) by Maver.[4] The rabbit tick, Haemaphysalis leporis-palustris Packard, which is common on rabbits and game birds, was studied by Parker[5]. He believes that this tick may play a role in the maintenance of the virus in nature, but it does not play an important part in the transmission of the disease. Two years are ordinarily required for the completion of the life cycle of the tick **d. andersoni.** The female, after engorging on mammalian blood and after impregnation, lays from 2,000 to 7,000 eggs. These hatch into six-legged larvae, and after feeding on some small mammal, they moult into nymphs which remain dormant until the following spring. The nymphs then feed on some small rodent and moult into adult males and females which remain dormant until the second spring. The adults feed on the larger mammals, including man, and thus complete the life cycle. The larvae and nymphs do not survive if they fail to feed during their active season. Thus only a small number of eggs reach the adult stage. Adults may survive several seasons without feeding. Infection in man depends upon the presence of the virus in the tick, and the virus may be transmitted by either male or female ticks. The percentage of infected ticks varies in different localities. Ticks apparently do not suffer any ill effects from harboring the spotted fever virus, which is also true of the intermediate mammalian hosts. It has been shown that the virus may be transmitted directly through the tick eggs from one generation to another, but whether this is sufficient to maintain the virus in nature or whether some intermediate host plays an important rôle has not been determined.

The attached tick is usually available for

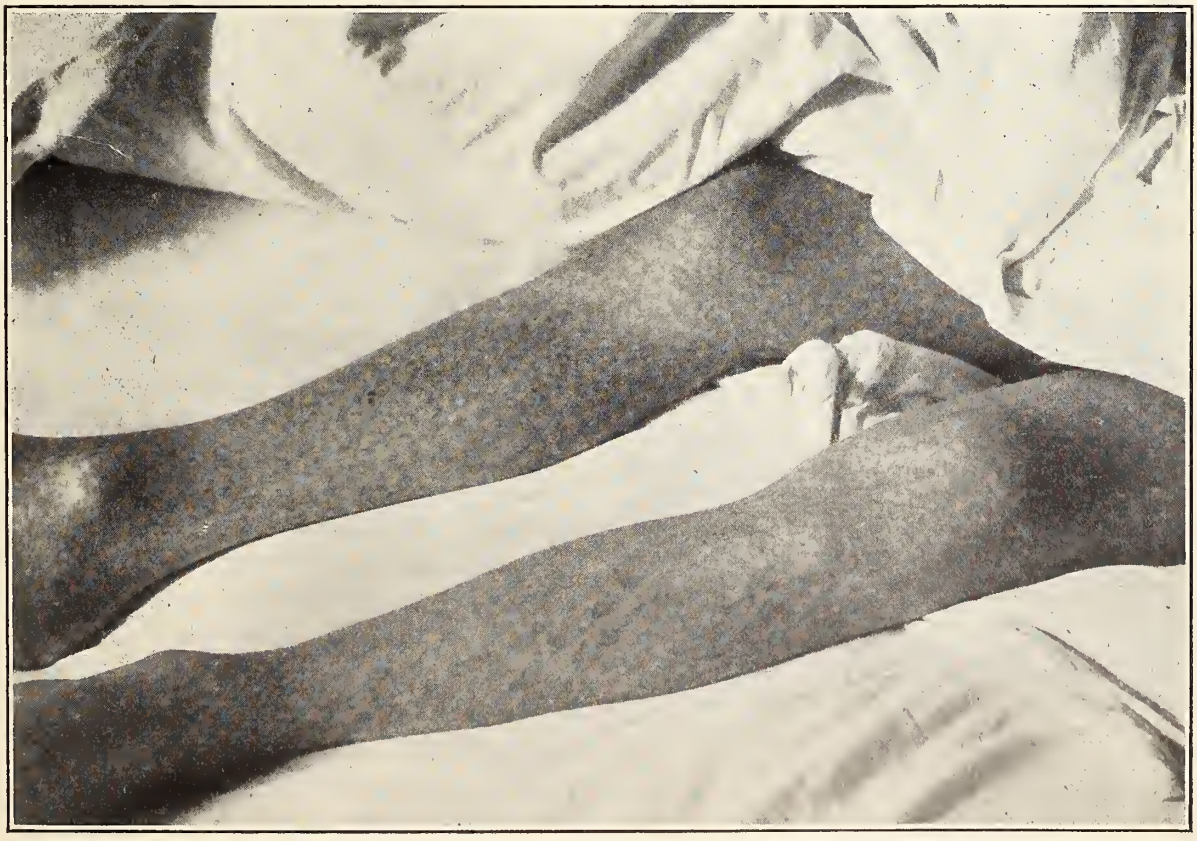


Fig. 2. Same case as Fig. 1. Eruption better demonstrated on legs.

examination and rickettsia can often be demonstrated in large numbers in tick smears and tick sections. Parker and Spencer[6] believed at one time that infected ticks could thus be identified. However, they have since shown organisms indistinguishable from the Rocky Mountain spotted fever rickettsia in non-infected ticks, and in known infected ticks they have occasionally failed to demonstrate them.

Agglutination of B. proteus X_{19} (Weil-Felix test): Kelley[7] on the basis of nine tests with serum from cases of Rocky Mountain spotted fever believed that the Weil-Felix test was negative in this disease and could be used to differentiate it from typhus fever. Kerlee and Spencer[8] report positive results with serum from patients sick with Rocky Mountain spotted fever and with experimentally infected rabbits, and negative results with the serum from infected guinea pigs.

Prognosis: The prognosis is always grave in children, the aged, and in debilitated individuals. Death may occur during the height of fever, between the seventh and tenth days, or later during the second or third weeks from complications. If recovery occurs, convalescence is usually greatly prolonged. Bronchopneumonia is the chief complication; myocardial failure is often the secondary cause of death.

Diagnosis: Early diagnosis is not of great



Fig. 3. Microorganisms in vessel wall in the epididymis of a guinea pig infected with the Montana Laboratory vaccine strain. Note the intracellular location in the endothelium and in the smooth muscle cells. Photomicrograph 2,200 diameters.



Fig. 4. Drawing of the field in Fig. 3 to show detail of morphology and massing of the microorganisms. 2,200 diameters.

importance because there is no known specific treatment. The clinical picture of typical cases is so characteristic that they are usually easily recognized, especially if there is a history of tick bite and a well developed skin eruption. The course of the disease is usually very stormy from the onset, even in the so-called mild cases, and patients are extremely ill; therefore a skin rash without much fever and prostration would not indicate spotted fever. The course of illness and the various laboratory procedures will determine the differential diagnosis from measles, smallpox, meningitis, meningococcus septicemia, purpura hemorrhagica, and typhoid fever. Differentiation between Rocky Mountain spotted fever and typhus fever may be impossible from clinical data alone. The Weil-Felix test is positive in both diseases. Animal inoculation with subsequent cross immunization tests may be the only certain criterion since one disease does not confer immunity to the other (Spencer[1]).

"Colorado Tick Fever"

As early as 1922 my attention was directed by several Boulder physicians to a prevalent symptom complex following the bite of wood ticks in which a skin eruption did not develop. This was at the time believed to be an intercurrent infection, not due to the tick bite. Rather extensive study of this condition since then has led to the belief that this is a separate tick disease. Until this summer I was under the impression that this infection was peculiar to Colorado,

and, therefore, I have used the name "Colorado tick fever," commonly employed by many Colorado physicians, to distinguish it from Rocky Mountain spotted fever. Recently I have learned from reliable sources that a similar infection exists in Idaho and in Oregon.

This syndrome may be described as a mild, nonfatal, noncontagious infection without skin eruption, following the bite of a wood tick. Three to five days after the tick bite a period of lassitude lasting for twelve to twenty-four hours is followed by a slight chill and a moderate rise in temperature, severe headache, moderate conjunctivitis with photophobia, generalized muscle and joint pains, especially in the back, and nausea with occasionally some vomiting. The temperature of from 101°-104° F. subsides in from one to three days and is often followed in twenty-four hours by a secondary rise, which may last from one to three days longer. No rash develops. No complications or sequelae have been noted.

In the differential diagnosis obviously a great many minor indispositions must be considered. A history of a tick bite three to five days before onset of symptoms, conjunctivitis and photophobia with fever and aching which cannot be explained on the basis of any other physical findings are the diagnostic features.

From the practical standpoint it is important in obscure influenza-like infections during the tick season to search for a tick that may be attached; and a patient with a tick history who does not develop a rash within the usual period of time, and whose symptoms are somewhat milder than those of true Rocky Mountain spotted fever, would be very much relieved to have his physician tell him that he has a mild non-fatal infection. This infection is common in Colorado, and I would appreciate the co-operation of the physicians of this state in the study of such cases during the tick season next spring.

Local infections

A hemorrhagic area from one to four centimeters in diameter is often seen at the site of the tick bite. This is perhaps caused by an anticoagulant in the saliva of the tick and produces no symptoms.

In addition severe local infections sometimes follow tick bites. Sluggish ulcers with a large surrounding indurated area from one to five centimeters in diameter may develop. Constitutional symptoms are usually mild. It is commonly believed that these reactions result from an incomplete removal of the attached tick and that they are a secondary wound infection; however, the indolence of the ulcers seems to indicate that some specific etiologic agent is transmitted by the tick.

Tularemia

It has been shown that the wood tick may transmit tularemia to man (Parker, Spencer, and Francis[9]), therefore, the practicing physician must also consider this disease in tick infections. Local inflammation with the production of ulcers and enlargement of regional lymph glands, which may suppurate, together with a recurring fever and severe aching are the characteristic features of this disease. The agglutination of a suspension of b. tularense by the serum of the patient ill with the disease is a certain diagnostic test.

Tick paralysis

Tick paralysis is a rare condition which has been described in both man and animals. (McCornack[10]) (Parker and Butler[11]). An ascending paralysis develops rapidly and may result in death. The tick is usually found attached near the spine or the base of the skull. Practically nothing is known about the nature of this disease.

Management

Personal prophylactic measures: In the management of tick-transmitted diseases, we must first consider some general personal prophylactic measures. Ticks are active only through the few spring months of April, May, June, and the first part of July; therefore the avoidance of tick infested regions during these months is almost a perfect safeguard. While it is perhaps not necessary to stay out of the mountains altogether, it

is certainly advisable to avoid particular localities where cases of spotted fever have originated during the previous year.

Those individuals who must frequent these places should receive the prophylactic vaccine developed by Spencer and Parker in the United States Public Health Service laboratory at Hamilton, Montana. This is a phenolized and formolized normal saline suspension of the viscera of ticks artificially infected with a virulent strain of the Rocky Mountain spotted fever virus.

The wearing of leggings or high boots and tight trousers affords some safety; however, the wearing of tight collars and close fitting wrist bands is not advisable, first because they do not give complete protection and may only serve to arrest ticks in their wanderings and cause them to attach themselves more quickly, and second because they may give an unwarranted feeling of safety.

Since ticks do not as a rule become attached for several hours, the careful search of the body and clothes at the end of the day is very important. If a person must spend some time in a known infected locality, such a search should be made at least twice daily.

It has been shown that an attached tick does not immediately transmit the virus it harbors, in fact several hours may elapse before this occurs, therefore, the earliest possible removal of the tick is important. The mouth parts of the tick are arranged with rows of barbs pointing backwards, therefore the removal is difficult. The application of turpentine, chloroform, other chemicals, or heat is not usually successful in causing ticks to release their hold. Since the mouth parts of the tick are short, it is a simple procedure to pull the tick up until a small tent is formed by the epidermis. This can be snipped off with a pair of sharp scissors with practically no pain, and one may then be certain that no part of the tick remains embedded. The small wound should be cauterized with a silver nitrate solution or some other mild chemical. The hemorrhagic area surrounding the bite usually needs no special treatment.

General public health measures: The more general measures for control are a public health problem and should be managed by the state board of public health in conjunction with the local health officers; however, physicians can assist materially with their full co-operation in reporting cases and collecting complete data.

The areas of infection in the state must be clearly outlined and the degree of virulence must be determined. This means that cases must be reported not only by counties but by canyons or gulches in which the infectious tick was acquired. Such localities should be posted and people should be warned against visiting there during the tick season. The measures recommended by the United States Public Health Service for tick eradication should be carried out, such as the dipping of domestic animals, the destruction of rodents and the clearing of underbrush. In Montana the tick parasite, ixodaphagus caucurtei, has been introduced, The female lays its eggs in the nymphal tick, which is destroyed when the eggs hatch into the maggots. As soon as it can be proved that this parasite is successful in reducing the number of ticks, it should be introduced into Colorado.

Special treatment: There is no known specific for true spotted fever, the Spencer-Parker vaccine being of prophylactic value only. The treatment, therefore, can only be supportive and symptomatic. The introcellular location of the micro-organism in the endothelial lining of the blood vessels makes it very resistant to any drugs. The claim for this or that drug as a specific with a hundred per cent cure can perhaps be explained by supposing that the cases in such a locality are all mild. Sufficient food for the caloric requirements of the patient and measures to combat the acidosis are of course important.

Colorado tick fever is usually satisfactorily treated with the ordinary pain relieving and fever reducing drugs.

Local infections are a surgical problem.

For tularemia as for spotted fever there is no specific. The disease, although very

disabling and prolonged, fortunately does not have a high mortality rate.

Tick paralysis improves as soon as the attached tick is removed, and this removal is the only procedure necessary for recovery.

Summary

Recognition of the various types of tick-borne infections is important because of differences in prognosis and treatment.

The following measures in the management are recommended:

First: Personal prophylactic precautions such as avoidance of known areas of infection during the tick season; immunization of highly exposed individuals; wearing of proper protective clothing; search of the body and clothing for ticks after an outing in the mountains; and early and complete removal of attached ticks.

Second: Public health procedures such as a survey to outline definite areas of infection; determination of the degree of virulence in different localities; and eradication of ticks by the methods recommended by the United States Public Health Service.

Special treatment can, unfortunately, only be supportive and symptomatic since there are no known specifics for the tick-borne infections.

BIBLIOGRAPHY

[1]Spencer, R. R.: Rocky Mountain Spotted Fever, J. Inf. Dis. 44:257-276 (April), 1929.

[2]Wolbach, S. B.: Studies on Rocky Mountain Spotted Fever, J. Med. Res. 41:1-197 (November), 1919.

[3]Kuczynski, M. H., and Brandt, E.: Die Erreger des Fleck und Felsenfiebers, iBologische and Pathogenetische Studien, Julius Springer, Berlin, 1-256, 1927.

[4]Maver, M. B.: Transmission of Spotted Fever by Other than Montana and Idaho Ticks, J. Inf. Dis. 8:327, 1911.

[5]Parker, R. R.: Transmission of Rocky Mountain Spotted Fever by the Rabbit Tick, Haemophysalis Leporis-Palustrus (Packard), Am. J. Trop. Med. 3:39-45 (January), 1925.

[6]Parker, R. R., and Spencer, R. R.: A Study of the Relationship between the Presence of Rickettsia-like Organisms in Tick Smears and the Infectiveness of the Same Ticks, Pub. Health Rpts. 41:461, 1926.

[7]Kelley, F. L.: Weil-Felix Reaction in Rocky Mountain Spotted Fever, J. Inf., Dis 32:223-225 (March), 1923.

[8]Kerlee, A. L., and Spencer, R. R.: Rocky Mountain Spotted Fever. A Preliminary Report on the Weil-Felix Reaction, Pub. Health Rpts. 44:179-182 (January 25), 1929.

[9]Parker, R. R., and Spencer, R. R., and Francis, E.: Tularemic Infection in Wood-tick of the Species Dermacentor andersoni (Stiles) in the Bitter Root Valley, Mont. Pub. Health Rpts. 39:1,057-1,073 (May 9), 1924.

[10]McCormack, P. D.: Paralysis in Children Due to the Bite of Wood Ticks, J. A. M. A. 77:260, 1921.

[11]Parker, R. R., Butler, W. J.: Results of Preliminary Investigations in Montana of Pathological Conditions in Sheep Due to the Wood-tick, Dermacentor andersoni (Stiles), Mont. State Board of Entomology, Seventh Biennial Report, 1927-1928.

DISCUSSION

C. S. Faust, Colorado Springs: Dr .Becker has so thorougnly covered this subject that little is left to say other than to emphasize the importance of prophylactic treatment. Dr. Becker's warning is certainly timely, and every effort should be made to inform the public of the danger in contracting tick fever while hiking in the mountains. For years we have tried to impress the importance of not drinking water from mountain streams, so that today the average hiker takes along his own canteen of drinking water necessary for the length of time he is to be away.

In the community in which I live, there are hiking clubs, mountain climbing clubs, whose members never think of drinking water from mountain streams, having been warned of the danger of contracting typhoid fever. If these efforts have succeeded so well, why not continue this work and give the public information necessary to prevent such diseases as tick fever?

The past few years there have been two cases of Rocky Mountain spotted fever reported to our city board of health. One could be traced directly to a ranch in South Park, halfway between Cripple Creek and Florissant. The other case was contracted in Waldo Canon. about two miles up Ute Pass from Manitou. Of course, it is possible that there have been other cases throughout this area that have not been reported, and possibly have never been diagnosed.

Of the two cases I mention, the first occurred in July, and the second in May, one in 1927 and the other in 1928. In boh cases the tick was found on the body, in Case one on the back of the neck, and Case Two on the right side of the neck. Case One has been reported and was a typical spotted fever case.

Case Two was that of a male, aged 45 years, family history irrelevant. always enjoyed good health. In May, in company with his two sons, he spent the night and part of Sunday in Waldo Canon, already mentioned. They slept in the lee of an overhanging rock, where they had kindled a fire. Monday, the patient's wife discovered the tick on his neck. At the time of beginning illness, he being district attorney, he was trying a bank robber connected with the Manitou bank holdup, and as he expressed it, he "didn't know whether I was excited over the case, or whether I was really ill," but when I first saw him he had a temperature of 103, complained of severe headache, pain in his joints and back, and began to show some eruption of the macular type on the wrists, which rapidly spread so that in two or three days the eruption was typical, and the blood picture made the diagnosis positive.

The outstanding symptom in this case was the severe conjunctivities which was controlled by argyrol, 20 per cent, and boric acid. There was considerable mental confusion, severe headache and backache, joint aches, and a temperature range of 101 to 104 at the highest point, which ran the typical twenty days.

The treatment was, of course, entirely symptomatic and supportive; water, internally, externally and eternally. The diet was largely suppurative. The patient had a slight diarrhea, but no bloody stools. He made an uneventful recovery with no sequelae, and after a month's rest from his business as attorney, and a change of environment, he returned ot his business and keeps up an active life.

M. A. Spangelberger, Denver: Dr. Becker has so thoroughly covered the subject, not only in his lecture today, but in previous contributions, that I wish to emphasize only one point, and that is the incidence of this disease in localities remote from tick-infected areas. Such a case happened in Denver in an individual who at no time had left the city limits. I shall briefly report a case.

This is the report of a case of a female, age seventy years, the course of the disease extended over a period of twenty-seven days, terminating by lysis in recovery.

On May 27, 1929, a partially engorged tick was removed from the inner aspect of the upper left arm. Forty-eight hours later, a frank chill occurred followed by a rise of temperature to 103 degrees; pulse rate 130. There was severe aching in the major joints, and lumbar region, with intense headache.

After two days, the skin eruption appeared, being first noted on the ankles, wrists and back. At the end of twenty-four hours, the rash spread generally over the body appearing as pale red macules deepening in color to bluish spots of irregular outline. The entire body surface, including the scalp, palms and soles presented purpuric areas with superficial and deep hemorrhages into the skin. At no time during the course of the disease was the slightest shade of icterus noted, or any hypersensitiveness of the skin.

The temperature, rising gradually, on the fourth day remained at 103 to 104 degrees with only slight morning remissions from 102.6 to 103.5 degrees for twenty-one days, with a gradual drop, until normal temperature was established on the 27th day.

Pulse rate: This was rather high in comparison with other recorded cases, probably due to the myocardial weakness usual to advanced age. The rate was 140 to 150 until the fifth day of the disease when digitalization as a supportive measure lowered it to 110.

The respiration was proportionate, averaging 30 to 40 per minute, regular respiration being interfered with by a brief, moist cough. From the onset there was deep injection of the conjunctiva with photophobia. The nasal and buccal mucous membranes were reddened, dry and tender. The tongue was dry, brown, reddened at the tip.

On the 17th day of the disease, epistaxis to an alarming amount took place.

Spleen: A large, hard splenic enlargement occurred and persisted until the third week, when gradual diminishment in size took place.

Anorexia was present from the onset, and continued until some time after convalescence. At no time was nausea or vomiting present. Constipation persisted until the second week when bowel incontinence began and continued for seven days. This condition was particularly distressing to the patient and attendants; involuntary evacuation occurring hourly. Despite assiduous care, bed sores developed at the sites of hemorrhagic areas, in the region of buttocks and sacrum. This feature of the disease is emphasized as it is usual in cases in Colorado, but it is not noted in the cases from other tick-infested states.

Urine: This was scanty, of high specific gravity, and albumen and acetone were present in large amounts. Many casts were found on the daily examination of the urine, chiefly of the granular and blood variety. Inasmuch as the main effort in this case was the administration of immense quantities of fluids and other measures to overcome acidosis, this condition continued for three weeks. The urine then returned practically to normal, but at no time was it acetone free.

Blood: Blood examinations were made frequently during the course of the illness. It was noted that the blood withdrawn was invariably dark in color with increased viscosity. Inversion of the tube two minutes after withdrawal of the blood saw no loss of contents. White cells 7,500. The differential white counts conformed with the findings in literature. Two distinct features persisted, viz., an increase in the large mononeulear leucocytes averaging 10 to 12 per cent, and a diminishment of eosinophiles ranging from .8 to 1.5 per cent. These above findings were constant in all blood examinations.

There was gradual lowering in the number of red blood cells from 4,200,000 to 2,500.000. and a drop in the hemoglobin index from 80 to 60.

Weil-Felix Test: Positive in dilutions up to 640 versus 3 strain B. Proteus X19.

F. B. Stephenson, Denver: Twenty years ago I think the government did some work on deer fly fever, and an intracellular organism was mentioned. I would like to ask Dr. Becker whether this is in any way related to tick fever, and whether it occurs in Colorado?

Dr. Becker (closing): It has been shown that there are several tick species that may transmit the spotted fever organism. One of these is the rabbit tick. This tick, although very common on jack rabbits, does not attach itself to man and on this account it is not important in the transmission of this disease. However, it may play an important part in the maintenance of the infection in nature.

There has been some controversy about the correct scientific name for our common wood tick. Wolbach, in his monograph, used the name **Dermacentor venustus.** The United States Public Health Service has adopted the name **Dermacentor andersoni** and this has now been generally accepted as the correct name. The common sheep tick belongs to the Insecta and not to the Arachnoidea, like the true ticks.

It has been shown that tularemia may be transmitted by ticks and also by the deer fly.

I should like to take this opportunity to thank the physicians of Colorado for answering the questionnaire sent out during the past spring. The results of this investigation will be published in another paper. May I request that all cases of tick fever, whether true spotted fever or not, be reported next spring to the Department of Pathology of the University of Colorado Medical School, because we wish to make a further study of these infections. We are particularly anxious to determine, if possible, whether the so-called Colorado tick fever is true Rocky Mountain spotted fever or whether it is a separate disease entity.

MENINGOCOCCUS MENINGITIS TREATED BY SERUM INTRACISTERNALLY*

PHILIP WORK, M.D.
DENVER

The then nation-wide epidemic of meningococcus meningitis appeared in Denver with the reporting of eleven cases in October, 1927. Between October 1, 1927, and July 1, 1928, there were reported 107 cases in the Denver area with a 54 per cent mortality. Between October 10, 1927, and May 15, 1928, ninety-four cases occurred with a death rate of 52 per cent. It is hoped that a brief statistical survey of the epidemic and a consideration of the hospital series will be of interest.

That this epidemic was of unusual virulence is variously attested. The general local death rate was 54 per cent, the rate in cases outside this hospital series was 70.1 per cent. Even higher death rates prevailed in certain communities adjacent to Denver.

During the epidemic the writer was in charge of the meningitis section of the municipal contagious disease hospital and there cared for forty-six unselected cases with a mortality rate of 32.6 per cent. The disease was fulminant, as indicated by the fact that 40 per cent of all deaths occurred in the first two days. Many died in the first twelve hours of the disease.

In this hospitalized series there were no deaths after the fifth day attributable directly to the toxin of meningitis, but there were some due to intercurrent causes or to sequellae such as myocarditis and pneumonia. More than 40 per cent of the hospitalized cases gave a definite history of some acute respiratory infection from two to twenty-one days before the onset of clinical meningitis, which was almost uniformly of violent onset and rapid progression.

In the hospital series the following admission procedure was routine. No case was admitted till proven microscopically, or conclusive clinically. The interne took what history he could get, not always a satisfactory one, and made a careful physical examination with detailed reference to neurologic phenomena. He then withdrew spinal fluid for examination, injecting routinely at this time 15 c. c. of blood-temperature commercial polyvalent anti-meningococcus serum, regardless of the appearance of the fluid. The amount of fluid taken varied from 15 c. c. to 80 c. c., the criterion being the reduction of pressure approximateyl to normal.

Untoward symptoms never arose from this withdrawal. When the serum was given in the lumbar region, the foot of the bed was elevated for one hour to facilitate its flow cephalad. Pressure and color of the withdrawn fluid and the degree of its turbidity were noted and immediate examination made of the cell count and stained smear. Fluids grossly clear were frequently found to contain several hundred cells and to demonstrate the meningococcus.

After a single dose of serum the frequency of finding the organism decreased to 20 per cent. If the serum were given intracisternally the percentage was even lower. In several cases where the organism was not demonstrable in the lumbar fluid, it was readily found in cistern fluid taken at about the same time. Cistern fluid routinely gave a slightly higher cell count than lumbar.

Table 1 shows the chronologic incidence of the epidemic, the disease being present during the spring months, absent as expected, during the summer and increasing sharply during the winter, with, contrary to the usual history of epidemics, a virulence rising rather than falling. The short column shows the period of operation of the isolation hospital.

Incidence and mortality by age groups does not differ widely from published statistics. Table 2 deals with the initial complaints of hospitalized cases, and is in view

*Read before the Pueblo County Medical Society Oct. 1, 1929.

of the variety of complaints, most interesting. Eleven of the forty-six cases for various reasons could give no information. Two were positive that their **headache** was "general," one that it was a "sinus headache" inasmuch as he "had bad sinuses anyway."

Table 1

Chronologic case incidence with distribution of deaths

1927 1928	Totals Cases	Totals Deaths	Hospital Series Cases	Hospital Series Deaths
Jan.	1	0	----	----
Feb.	0	0	----	----
Mar.	2	0	----	----
Apr.	1	4	----	----
May	3	3	----	----
June	0	1	----	----
July	0	0	----	----
Aug.	2	0	----	----
Sept.	0	6	----	----
Oct.	11	3	----	----
Nov.	4	3	----	----
Dec.	3	4	1	0
Jan.	15	5	5	2
Feb.	20	8	9	2
Mar.	25	13	20	7
Apr.	9	7	7	2
May	7	3	4	2
June	4	1	0	0
TOTALS	107	58 or 52.3%	46	15 or 32%

CASES Outside Hospital Series: 61 with 43 deaths or 70 per cent mortality.

Note: Data compiled from records of the Bureau of Vital Statistics, City and County of Denver.

Table 2

Initial complaints of 35 patients of hospital series

	cases	percent
Headache	9	= 24+
Delirium	5	= 13+
Vomiting	5	= 13+
Unconsciousness	5	= 13+
Fever	3	= 8.5
"Colds"	3	= 8.5
Convulsions	2	= 5+
Stiff neck	2	= 5+
Appendicial pain		
	35	

The **delirium** was in no way characteristic except in its severity, in two cases simulating an acute mania. **Vomiting** was, as usual, mostly attributed to dietetic errors. No conclusive information was had as to its character. In the **unconsciousness** group, two went to sleep while going about their daily duties without having previously complained, and three were found unconscious in bed in the morning, without having complained of feeling ill the night before.

The three cases with "fever" were little children in families already having a case of meningitis and whose mothers brought them in when the fever was discovered. None of these children complained spontaneously, though one of them had 14,000 cells per c. mm. six hours after the fever was first found. Three people thought that they were "just taking a cold," they "felt rotten" and complained only of that. It is remarkable in view of the emphasis on that symptom in text-books, that only two had initial convulsions. Two had stiff neck and one an appendicial cramp which proved merely coincident. Pulse rates were not distinctive, ranging from 61 to 155 with an average of 88. Dicrotism was frequently noted. The youngest patient in town was 21 days old, the oldest 61 years. Both died.

Table 3 shows cell counts per c. mm. on admission. On admission none of these patients had presumably been sick more than thirty-six hours, most of them much less than twenty-four.

Table 3

Cell counts per c. c. of cerebrospinal fluid at time of admission of 42 cases, with percentage of deaths

Counts per cmm.	Cases	Deaths	Percentage
100 to 500	2	2	100
500 to 1,000	7	1	14
1,000 to 2,000	0	0	----
2,000 to 5,000	3	0	----
5,000 to 7,500	2	0	----
7,500 to 10,000	3	1	33.3
10,000 to 15,000	11	3	27
15,000 to 20,000	2	1	50
20,000 to 30,000	6	3	50
30,000 to 40,000	3	0	--
Over 40,000	3	0	--
	42	11	

Table 4 gives the temperatures on admission and Table 5 the death rates. Early hyperpyrexia apparently is a more unfavorable sign per se than is an excessively high cell count. Objectively the sickest people in the series were those with initial cell counts from 7,500 to 15,000.

Petechiae were seen on admission in 40 per cent and developed in hospital in 15 per cent more. While most common in the sickest people, the man with the most, made an early recovery. The meningococcus was demonstrated at some time in the course of 82 per cent of the cases.

Table 4

Temperature on admission of 46 cases with percentage of deaths

	Cases	Deaths	Percentage
Normal to 100	2	1	50
100 to 101	7	0	0
101 to 102	15	5	33.3
102 to 103	7	2	28
103 to 104	9	3	33.3
104 to 105	6	4	66.6
	46	15	

Table 5

Duration of 45 fatal cases from day of diagnosis

	Deaths	Per-cent	
In 1st 24 hrs.	18	40	
In 2nd 24 hrs.	13	29	
In 3rd 24 hrs.	4	8.8	
On 4th day	0	0	
On 5th day	4	8.8	
On 6th day	1	2.2	ac. cardiac dilatation
On 7th day	0	0	
On 8th day	0	0	
On 9th day	1	2.2	marasmus (age 3 mos)
On 10th day	1	2.2	???
On 11th day	1	2.2	broncho-pneumonia
On 12th day	1	2.2	broncho-pneumonia
On 13th day	0	0	
On 14th day	0	0	
On 15th day	1	2.2	myocarditis
	45	100	

Treatment and course

Treatment of the hospitalized series was at first by serum intraspinally only. Results were not satisfactory. The disease was often fulminant and patients died before any effect from treatment was noted, or they lived to receive huge amounts of serum, though remaining critically ill. Many got a serum sickness and sooner or later they practically all died, usually a cardiac death.

To this treatment was added serum intravenously and even subcutaneously without improving the situation. It was early concluded that subcutaneous administration was without useful results, practically. Flexner[1] says that there is no justification for it theoretically. The disadvantage of intravenous administration we found to be the frequent shock. The only residual complications in the series followed cases treated intra-spinally, either wholly or in conjunction with subcutaneous plus intravenous administration.

Treatment by the lumbar approach was early abandoned in favor of administration into the cisterna magna, access being gained by the ordinary spinal puncture needle inserted in the midline just below the occipital bone, following the technique of Ayer.[2] Justifications for this were several. Lumbar puncture in meningitis is often difficult, sometimes impossible, because of opisthotonos. Drainage of fluid by lumbar puncture in the late stages is often precluded by the formation of exudate, or adhesions. The location of the disease process is primarily the cerebral meninges.

It seemed logical to apply the serum to the site of activity. It is problematic how much if any serum reaches the brain against the increased intrathecal pressure of a fulminant meningitis. Removal of purulent fluid is of great importance in combating sepsis. It was repeatedly shown that after all possible fluid was drained by lumbar puncture, often as much more could still be obtained by cisternal drainage without harm to the patient. Incidentally headache apparently does not follow cisternal puncture, nor were there other untoward results. Our final standardization of treatment was as follows:

The patient is allowed all the food that his condition permits. Fluid is given in abundance by mouth or rectum, saline catharsis is administered daily with enemeta as indicated. Morphine is given hypodermically as needed. Bromide and chloral or codeine are given for insomnia, which is a frequent and distressing complaint in convalescence. Mechanical restraint is used as needed. Digitalis is given throughout the febrile period to physiologic effect. Delirium is usually of short duration in cases drained cisternally. Fifteen c. c. of serum was given every twelve hours following the drainage of fluid. It was administered intracisternally unless there was reason for giving it by lumbar puncture, such as delirium making cistern puncture dangerous.

Also every twelve hours, so arranged that a treatment was given every six hours, spinal fluid was drained to the normal pressure but no serum given. A check cell count made once daily was used as an index of treatment. Trials were made of various amounts of serum and it was finally concluded that more good was accompiished by giving fifteen c. c. every twelve hours than by massive dosage at longer intervals. The author

feels that regularity in treatment and free drainage is of exceedingly great value, and the earliest possible attention is imperative.

Serum was given every twelve hours till the cell count came below 500 per c. mm., then every eighteen hours till it came below 100, when the serum was discontinued. The average amount of serum given intracisternally was 120 c. c., as contrasted with 210 c. c. in previous intraspinal cases. The average number of cistern punctures for treatment was eight and for drainage twelve. Drainage was sometimes done for relief of headache due to overproduction of fluid after treatment was discontinued.

Urticaria appeared in every patient getting serum by lumbar attack, if he lived long enough, but in only thirty per cent of those getting it by cistern. It was combated in the usual way and was not specially unpleasant. No cases of edema of the glottis occurred. No deaths were due to serum sickness. It was noted, however, that one day, due to failure of supply, a different make of serum had to be used. After the second dose all patients had hives.

The apprehension about cisternal puncture is entirely with the operator, but in our opinion it should not be attempted by one unpracticed on the cadaver. Care must be observed that the needle be not inserted more than 5.5 cm. at most. Patients repeatedly asked for cisternal puncture in preference to lumbar after they had tried both. Cisternal puncture is quicker, simpler and in experienced hands practically as safe. The course of the disease is shortened one-fourth by cisternal treatment and the patients are subjectively more comfortable during their illness. Acute delirium subsides rapidly from the first.

In cases with not over 15,000 cells we found at least a 2,000 drop the first day. Cases with 25,000 to 40,000 will sometimes drop as much as 10,000 in the first day. There was but one sequella in the cistern series, a transient paralysis of one arm due to a peripheral neuritis which cleared up in a month. Two residual sequellae occurred in the spinal series, one blindness, one deafness.

Conclusions

1. No so-called classic symptom is invariably dependable.
2. Mental state is not a guide to diagnosis or prognosis.
3. Any indisposition in a member of a family having a case of epidemic meningitis calls for diagnostic puncture.
4. Administration of serum via the cisterna is preferable in skilled hands to that via the spinal canal.
5. The cell count is not a criterion of the severity of infection.
6. The diagnosis is really made only in the laboratory.

REFERENCES

[1]Flexner, Simon: "Mode of Infection," Means of Prevention and Specific Treatment of Epidemic Meningitis, J. A. M. A., 1917.

[2]Ayer, James B., Puncture of Cisterna Magna. Arch. Neur. and Psych. 4:529, 1920.

FINDING THE FACTS ABOUT TUBERCULOSIS IN COLORADO*

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COLORADO SPRINGS

The social aspects of the treatment of tuberculosis in Colorado seem to be more difficult to solve than the medical aspects. For over a half century a constant stream of migrants have been making their way to the southwest. Seekers, they were, for homes, wealth, adventure, and healht. Each group has helped to add to the upbuilding of the state, but also has brought its responsibilities. Some of the seekers for health have come with money, many have not. Our federal government and various national organizations have established sanatoria and hospitals. These too have brought some wealth to the state, but many social problems.

How much this social condition is costing the state and the various counties we do not know. In Colorado Springs the cost for caring for the indigent is increasing. One of the responsibilities of a government such as ours is the welfare of its citizens. Since

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the tuberculosis problem is affecting the health of citizens, as well as being a financial burden, the Twenty-seventh General Assembly enacted a law known as House Bill No. 118. This provides for the appointment of a committee by the Governor composed of two members from the Senate and three members from the House of Representatives to study the problem and to report and make recommendations to the Governor and to the Twenty-eighth General Assembly.

This legislative committee is at work. It has no preconceived ideas as to what its recommendations will be. It has pledged itself to make as thorough a study as possible. Its decision will effect the care and treatment of tuberculous patients for many years to come. For that reason I plead with the profession to help us gather the facts regarding the tuberculous in Colorado so that any decisions made will react to the betterment of conditions affecting a large group of citizens in the state.

The work of the committee has been divided into five divisions. Senator C. F. Horne is chairman of the division on general education and community organization, which will study health facilities in schools, and will organize groups in the larger communities to gather facts. Senator R. A. Davis is chairman of the committee on cost of care. This committee will collect information from family relief organizations, as well as from county commissioners. Representative C. Edgar Kettering is chairman of the committee on legal procedure, which will compare our laws and ordinances with those of other states. Dr. W. H. Twining is chairman of a case finding committee. It is the hope of this committee to collect a few facts on every case of tuberculosis in Colorado during the year 1929. We all know that few cases in proportion to the number in the state are reported to the State Department of Health. Special records are being prepared for this reporting which will be sent you by the legislative committee.

As chairman of the committee on hospitals and sanatoria we shall endeavor to find how many of the existing beds for tuberculosis in Colorado are being occupied, and the cost of maintaining hospitals and sanatoria in the state.

I repeat that the committee expects to study this subject as fully as possible, and to make recommendations based on the facts gathered. An appropriation of one thousand dollars was made by the last General Assembly for the work. The members of the legislative committee are serving without pay, but since the appropriation will probably cover only our travel expenses, publishing a report and correspondence costs, we have accepted the secretarial service of the Colorado Tuberculosis Association and its field workers to help us collect the facts we need.

We are confident there must be cheaper and better methods of caring for the large group of tuberculous sick citizens than are now being employed by county commissioners and city governments. We have as citizens of Colorado a large group of sick. Whether or not they have come to Colorado from other states on account of the climate, or whether they have contracted the disease through contact while here, they are a responsibility of the state.

A COMBINED METHOD OF TREATMENT OF CARCINOMA OF THE CERVIX*

AUBREY H. WILLIAMS, M.D., HARMON P. BRANDENBURG, M.D., AND E. W. PERROTT, M.D.
DENVER

We need not devote time to any discussion regarding diagnosis or the need of treatment of carcinoma of the cervix. Our purpose today is to call attention to a means of treating such cases that in our hands has led to much better results than we were able to obtain when forced to rely on surgery alone.

The earliest treatment of cancer was by heat and for many centuries it remained the only treatment.[1] The hot iron was the mainstay of legitimate medicine until the age of

*Read before the Colorado State Medical Society at its fifty-ninth annual meeting at Greeley, September 3-5, 1929.

surgical attack of the cancerous cervix. Operation then became the method of choice and the various refinements in technique and the improvement in surgical skill finally culminated in the radical Wertheim operation, beyond which no one has gone.

Operations have always been limited to certain selected and early cases in the hope that the disease was limited to tissues that could be removed. By far the greater number of cases however were hopeless surgically even in the hands of the most radical and fearless surgeon and these cases continued to receive cautery treatment, and we find through the literature an occasional report of a cure by such means.

In 1892 John Byrne—then president of the American Gynecological Society—presented a paper in which he advocated high amputation of the cervix in cancer—not with the knife but with the actual cautery, and he presented statistics quite favorable as compared with the operative results of those days.[2] He brought forth clearly the fact that cutting with a knife or scissors allows the transplanting of cancer cells in new tissue and that heat prevents this possibility. The surgical treatment of cervical carcinoma would probably have given better results had his teachings been followed. So skillful did he become that in 1895 he reported total hysterectomies by means of the cautery alone without the use of knife or scissors.[3]

In 1911 came probably the first modern scientific advocate of heat for the destruction of cancer. Percy presented before the Western Surgical Association a paper in which he advocated not burning but slow cooking of the malignant cervix.[4] Based on the statement of Leo Loeb that cancer cells were destroyed by a temperature of 113° F., Percy proposed to slowly heat the tissues of the cervix and uterus to a point that would destroy the cancer tissue and not damage normal cells. By means of various experiments he demonstrated this possibility and since then has been an earnest advocate of this form of treatment. No one reading his papers can help being impressed by his results.

With the development of x-rays and discovery of radium and the recognition that these agents therapeutically offered a means of selectively destroying malignant cells without the destruction of adjacent or intervening normal tissues came a new era in the treatment of cancer. I need not go into the story of the development and use of radium and x-ray in cancer therapeusis. Few of you are so young that you cannot remember when radium was a mere curiosity and the x-ray tube capable of handling 200,000 volts was unknown. Let it suffice to say that today the use of radium as a basic agent in the treatment of cancer of the cervix leads by far the operative treatment and there are many who believe that hysterectomy as a treatment of the malignant cervix will soon be obsolete.

Our personal experience with carcinoma of the cervix embraces all the accepted methods of treatment. Prior to 1924 major operative procedures were the methods of choice—the cautery being reserved for those cases labeled as hopeless. Radium we had used at various times from 1917 on, but the supply was uncertain and our lack of knowledge led us to use what was available only as an adjunct to operation and in useless dosage. Consideration of operative failures led us in 1924 to a practical abandonment of hysterectomy for cancer of the cervix and a determination to apply the simpler, safer and as time has proved, more effective methods of treatment.

The ancient use of heat in the form of the cautery and its more modern use as advocated by Percy seemed reasonable and safe if carried out with surgical knowledge, so we adopted that as our first step.

Radium could not be ignored. If radium was capable of bringing about five year cures in carcinoma cases that the surgeons considered hopeless, surely it was worthy of use in all cases—so radium following the use of heat became our second step. Neither heat nor radium was capable of reaching possible metastatic foci in the lymphatics draining the cervix and adjacent tissues. The high voltage x-ray did offer that possi-

bility, so we adopted that as our third step. We decided that, instead of using one or another of these agents in a given case we would use the maximum dosage of all three in every case. None of these things are new or original, but we have yet to find any writer reporting the use of all routinely. We feel it is logical. Carcinoma unchecked means death. None of our procedures in themselves involve anything like the shock or lowering of resistance that a major abdominal operation involves. Therefore we give each patient as heavy treatment with all three agents as we feel they can stand and our results so far have more than justified our belief.

Methods of treatment

Our routine procedure is as follows: Upon diagnosis, made by examination alone and not by tissue section at this time, the patient is sent as soon as reasonably possible to the hospital. Under general anesthesia a portion of the growth is removed for pathological diagnosis and then as much as possible of the malignant tissue is slowly cooked with an electric cautery.

The important points which require as much or greater surgical skill and judgment as in doing a hysterectomy are the slow heating of the tissues and the destruction of as much malignant tissue as possible without injuring the bladder or rectum. This requires the knowledge and experience of one thoroughly familiar with all pelvic operative procedures and should no more be undertaken by the novice than a hysterectomy after the technique of Wertheim.

Following the cautery the radium is immediately placed in the cavity that remains. It is extremely important that the bladder and rectum be separated from the radium by gauze packs. Our dosage has gradually increased and we are now using about 5,000 milligram hours as our desirable dosage.

Following this procedure — usually in about a month—the pelvis and lymphatic chains draining from it are treated with as heavy as possible dosage of therapeutic x-ray. This completes the treatment.

Our results so far have been much more satisfactory to us than operative procedures and in the light of present knowledge we feel we are giving our patients the best possible treatment.

Results

"Figures never lie except in the hands of a liar" was a maxim taught me by a professor of mathematics who then proceeded to demonstrate by mathematical laws that two was equal to four. With that in mind I do not propose to give any elaborate figures in percentages to prove how well we have succeeded. I am well aware that having used these methods only since early in 1924 it is impossible to give five year cures, the criterion upon which custom and common sense has based the test for all reported cures of malignancy. We have a comparatively small number of cases to report when we consider the large clinics that are reporting them by the hundreds. This country is blessed by very little population as compared with crowded eastern cities and that population is scattered over many miles, so the cases coming to any one group are few. From some study that I made of the number of cases of cancer of the cervix in one of our large Denver hospitals, there was only one case in each four hundred admissions to this hospital during the past five years—and these cases, fifty-four in number, were sent in by fourteen different men, so that the average to any one man was very small. This being an average hospital it may be reasonably taken to indicate the conditions prevailing in all the hospitals in Denver and in the state as a whole. It would undoubtedly lead to much better handling of the cancer problem if there could be a concentration of cancer cases in the hands of a few doctors especially trained in their treatment. Such proposals have been made in other sections of the country but so far there seems no practical way of carrying out the suggestion.

We have during the years from 1924 to the present time treated by the above outlined methods twenty-one cases, strictly limited to carcinoma of the cervix—carcinoma of the body of the uterus is not included, nor is carcinoma of the vagina except where it was definitely a part of a primary cervical

cancer. These cases classified according to the Schmitz grouping,[5] which has seemed to us a simple and practical classification, fall in the following groups clinically:

When the patient has recovered suffi-

Group 1: A clearly localized, simple growth—the primary ulcer or nodule—with no extension of infiltration into the surrounding cervical tissues. (4 cases.)

Group 2: The nodule or ulcer with beginning infiltration of the surrounding cervical tissues but which has not extended beyond the confines of the cervix. (5 cases.)

Group 3. Growths with infiltration of the parametrium. (3 cases.)

Group 4: Cancer of cervix with extensive ulceration, necrosis and infiltration of surrounding tissues, with sepsis, hemorrhage and cachexia. (8 cases.)

The first two groups comprise operable cases from the old standpoint and the last two the cases that are inoperable. Our largest number fall in group four—a hopeless group from any standpoint.

Of our twenty-one cases we have traced all but one—that one we class as dead, giving in all six deaths. It is worthy of note that all six deaths occurred in cases in group four, those originally diagnosed as practically hopeless. It is also worthy of note that our two cases remaining alive the longest—one five years and four months and one four years and two months also were classified as hopeless when we treated them. They are both well as far as examinations can disclose. Of the fifteen cases alive only one —the remaining case in the hopeless group—gives evidence at the present time of not recovering. Of our deaths all but one has occurred within a year of treatment and that one within two years, so we feel that the cases—eight in all—that have gone over two years in good health with no sign of recurrence are good prospects for cures. The remaining cases are of too recent treatment to be commented on at this time.

There are certain dangers in these advocated procedures that must be noted.

Hemorrhage may occur after the cautery or radium. Cases are reported. We have never had any.

It is easily possible with the cautery or radium to destroy the tissue separating the rectum or the bladder from the cervix and produce fistula; or if the malignant cells invade either of these organs their destruction must lead to fistulae and if they are not destroyed the patient must die. We have, we feel, been fortunate in having only two cases of fistula—both cases in the hopeless class and both, apparently, from the destruction of malignant tissue.

It is possible that the destruction of malignant tissue by the radium and x-ray may lead to a septic absorption that may endanger the patient. To avoid that we remove as much malignant tissue as possible with the cautery but there have been some very severe reactions following the radium and the x-ray, and it is very possible that some of the bad cases have been hastened somewhat in their downward path. Since they were hopeless under any other circumstances we have not hesitated through fear of toxic reactions. Since we have however no operative or hospital mortality we feel we are well off compared with an operative mortality as high as 17 per cent in reported surgical series.[6]

In conclusion we can only say that as a result of our individual experience we have worked out the methods which in the light of present knowledge are giving us results in the treatment of carcinoma of the cervix better than we have obtained by any other methods of treatment, and we feel that these results compare favorably with those reported by colleagues in different parts of the country[7].

Radium and x-ray technique

In approaching the subject of cancer of the cervix the fact must be kept in mind that we are dealing with a very deadly disease and that very drastic efforts should be made at the onset to check and destroy the disease at the first attempt or all later treatment will be only palliative.

The maximum of cautery, radium and x-ray are necessary in our opinion to get the greatest number of three, four or five year cures.

We realize that the percentage of three,

four and five year cures is rather high, but we attribute this result entirely to the vigorous methods used. The cauterization is so extensive that at times it is difficult to find enough cervical tissue to hold the radium.

Fifty milligrams of radium is encased in a silver capsule one millimeter in thickness and covered with unvulcanized rubber. It is placed in the remains of the cervical canal and packed in place by gauze which at the same time pushes the bladder and rectum away from the radium. This reduces the liability to recto-vaginal or vesico-vaginal fistula; however, if the malignancy extends into the bladder or rectum at the beginning, it is quite likely to break down under treatment by the radium and x-ray.

The 50 milligram capsule of radium is kept in position for four full days (96 hours), making the radium application 4800 milligram hours. After 36 hours the patient usually becomes quite ill from radiation sickness, water and alkalies are given freely and the diet is reduced for several days, chiefly because of the nausea and vomiting present. ciently to be about, the x-ray treatment is begun and continued for from one to two months, depending on the extent of the disease rather than the type of malignancy reported by the pathologist.

In November, 1922, by the completion of a high voltage installation capable of delivering two hundred thousand volts, which is the full capacity of the most powerful x-ray tubes at present manufactured, we were satisfied for the first time that we had great enough intensity to deliver a depth dose sufficient to act on the cellular structure of malignant growths. For the first two years we approached the full dosage with some concern, even with charts and curves drawn for us by a physicist whom we employed to come from Chicago. The intensity of radiation was checked against 100 milligram of radium with one of the electroscopes of the Colorado Radium Company by Dr. Withers and one of the company's physicists.

In 1924, after two years of observation of the biological action on patients treated by massive full doses which were delivered at one application through two, three or four portals, cross-firing on the pelvis from front, back and sides, we found that some improvement in technique was necessary and began to divide the dose and increase it to prevent severe skin and systemic reactions. About this time an excellent article by Kingery came to our notice. Kingery had worked out the amount of x-ray remaining in the tissues at various periods after the application of the x-ray. However, his tests were for low voltage and unfiltered radiation. It seemed logical that the same plan could be followed with high voltage copper filtered x-ray.

One thing absolutely necessary is to give the maximum depth dose or 135 per cent of the standard skin dose—only a few types of malignancy respond to less. Most carcinomata of the cervix are of the more resistant types to radiation.

Large portals 20 or 25 cm. square, through which the greatest depth dose is delivered, were used and the patients were not simply given one intensive dose of all the x-ray they could stand, which form of treatment was popular at this time. Instead they received a fractioned part of the full dose two or three times a week, for a month or in some cases two months—in all receiving from 150 to 200 per cent of the maximum amount which the skin would stand, if given in single massive dosage.

The pelvis was radiated in this manner from anterior and posterior portals, epilation of pubic hair was complete and the skin was darkly pigmented.

Some individuals had considerable radiation sickness while in others it was entirely lacking, but in no case was the reaction so severe as was common with the old technique of single massive dosage.

BIBLIOGRAPHY

[1]Brown, Alfred: Surg. Gyn. & Obs. XLVIII; 717 (May, 1929).

[2]Byrne, John: Brooklyn Medical Journal Vol. VI No. 2. Nov., 1892.

[3]Byrne, John: American Journal of Obstetrics, Vol. 33. July 27, 1895.

[4]Percy, J. F.: J, A. M. A. 58;696 (Mar. 9), 1912. J. A. M. A. 62:1631 (May 23), 1924.

Surgery Gynecology & Obstetrics, Sept., 1913, pp. 371.

Boston Medical & Surgical Journal, Vol. CLXXIII, July 15, 1915.

Surgery Gynecology & Obstetrics, Jan., 1916, pp. 77.

Lancet: Aug. 1, 1914.

[5]Donaldson, C. O. Radiology, Vol. XII, No. 2., Feb., 1929.

[6]Olmsted, G. A.: Wisconsin Medical Journal, Vol. XXVII, No. 12. Dec., 1928.

[7]Ward, Geo. G.: British Medical Journal, Oct. 6, 1928, pp. 607.

American Journal Obstetrics & Gynecology, Vol. XVII, No. 1. Jan., 1919.

Healy, W. H.: Transactions American Gynecological Society, Vol. 53, 1928, pp. 138.

Pomeroy, J.: American Journal of Roentgenology. Vol. 18, Dec., 1927.

DISCUSSION

Sanford Withers, Denver: It is a real pleasure to discuss this paper, for the treatment of malignant diseases occupies most of my time and energy.

I want to agree perfectly with Dr. Brandenburg and his technique in treating carcinoma of the cervix. I concur in this absolutely, and I agree almost entirely with what Dr. Perrott has said about the applicability of cauterization, although I believe that if the bulk of the malignancy is left in situ, and the radium plunged into it, or into the cervical canal, then the malignant tissue there will act as a filter for the normal cells, and the gamma rays can be made to cause cauterization of a larger area than can be safely done with the actual cautery, with even Percy's method.

In the report of five hundred cases treated by John G. Clark of Philadelphia by use of radium and cautery, he showed 24 per cent five-year cures. Whereas in recent reports on the use of high voltage x-ray with larger doses of radium, there is shown 36 to 44 per cent five-year cures.

The radiation therapist is treating more of these cases today, I believe, than are receiving surgical treatment, because more than half of the carcinomas of the cervix are inoperable when first seen by the physician.

Dr. Perrott (closing): I do not believe there is anything further to add. We have felt that our results justify the methods which we have used. We know that these methods in general are being used more and more every day, until the straight operative procedures are becoming very rare, and as long as we can get better results in this manner, we shall continue to use it.

Dr. Brandenburg (closing): I want to say just a word in regard to the treatment. Now, the treatment advised, suggested and used is of greater intensity than the commonly accepted treatment. In fact, it is about twice the amount used by other people, and I think that the end results are entirely due to the intense combined treatment and not to the fact that one uses an apparatus of a certain kind.

PATHOLOGICAL POSITIONS OF THE UTERUS

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The uterus, normally, is not fixed in one position but can be moved easily in all directions: upward, downward, forward, and laterally. Ordinarily, the uterus is inclined forward, the long axis of the organ, pointing to a point above the symphysis pubis, the direction varying with the individual, and in the same individual, varying at different times. The position of the uterus may be changed by the bladder, the rectum, and the intestines, normally. It is only the persistent abnormal position of the uterus which is considered pathologic. The pathological positions of the uterus may be considered under two main headings—displacements of the uterus, and a prolapse.

Displacements of the uterus

Anterior displacement of the corpus uteri, and lateral displacements of the uterus occur only as symptoms in the course of other diseases, and do not, in themselves, give rise to symptoms, nor require treatment. The anterior displacement of the corpus must not be confused with the anteflexion of the cervix itself when the axis of the cervix forms an angle with the axis of the body, the point of bending being at the internal os. This condition is almost always a developmental defect, and should not be considered with pathological displacements of the uterus itself.

Backward displacements of the uterus occur in the form of retroflexion, when the body of the uterus only is turned back, the point of turning being at the internal os and the position of the cervix remaining unchanged; and in retroversion, when the body and the cervix, the organ as a whole, is turned backward. Retrodisplacements are due to a weakening either of the abdominal muscles, diaphragm, or the levator ani. First there is a retroversion, later a retroflexion. The treatment of both of these conditions is the same and depends as to whether or not the uterus is freely movable. Retrodisplacements, with the uterus freely movable, in many cases, cause no trouble. They are only symptoms of an asthenic condition of connective tissue and musculature, even if the patients are strong and large. Backaches are not due in most cases to the

retroflexion, but to the coexisting weakening of the lumbar muscles. If an operation is done for the backache only, the condition is relieved for a time, being due to the rest the patient gets, not due to the operation. The backache almost always returns. A belt helps these patients. The indications for correction of these conditions are in some cases of:

(1) Pregnancy: The patient has pain in the sacral region, frequency of micturition, or excessive nausea and vomiting of pregnancy. If the uterus does not replace itself, which it usually does, the patient is put in the knee chest position for fifteen minutes three times a day, in a bed, where she can bounce up and down, while in this position. Or the patient is put in the Trendelenburg position, with a rubber bag in the vagina, filled with mercury for half an hour at a time, for several successive days. This does not induce contractions of the uterus. If the uterus is fixed, the patient will, in most cases, miscarry.

(2) Sterility: The retrodisplaced uterus may compress the tubes in the pelvis, and may cause a congestion of the endometrium. Correction of this condition, in certain cases of sterility, will be followed by impregnation.

(3) Certain cases of extreme constipation.

(4) Dyspareunia: The ovary is pulled down along with the body, becomes unusually sensitive and gives pain on intercourse.

(5) Incontinence, or frequent micturition: This is due to the pulling back of the bladder and its sphincter.

If the uterus is fixed in retrodisplacement, the adnexa are usually fixed too, and in most cases the patients have symptoms which require treatment. The treatment aims to loosen the adhesions, and to allow physiological movements. Diathermy and the mercury bag relieve the condition in a great many cases. Other conservative treatment consists of strengthening the back muscles, abdominal muscle, and levator ani as follows: (1) Abduct and adduct knees against center pressure; (2) Raise buttocks with head and heels on the bed; (3) Rise to sitting position without the use of the arms. If this does not relieve the condition, operative fixation has to be done. It is well to cover the site of the adhesions with a piece of omentum, as there is a great tendency for the adhesions to recur. In some cases where the adhesions are extensive a total extirpation of the uterus is better than a fixation.

Prolapse

Prolapse is due to weakening of the broad and round ligaments, the sacro-uterine ligaments, and the levator ani. If the uterus is in anteflexion practically no prolapse is possible; a retroversion always precedes a prolapse. The cervix at the vaginal opening does not necessarily mean a prolapse, it may be an hypertrophied cervix, or it may mean a vaginal descensus only. In rare cases, if there is a small uterus, and both the uterus and vaginal walls descend, a total prolapse is possible even with the uterus in anteflexion. Prolapse is caused not so much by a laceration of the perineum, as by overdistention during delivery, and a loss of elasticity of the connective tissue. Some women are constitutionally inferior, and inclined to get prolapse, they also have varicose veins, a pendulous abdomen, etc., and a tendency to endocrine disturbance. They are more apt to develop prolapse at the climacterium. Only 10 per cent develop it, with a history of one delivery. The proportion in virgins is about 3 per cent. Some have no symptoms, others have a bearing down feeling and disturbance of micturition. Frequency of micturition alone is not necessarily due to the prolapse, but may be a hypotonus of the sympathetics present at times in the climacterium, even without a prolapse, and a prolapse operation does not always cure the frequency.

The conservative treatment with pessaries requires the presence of a levator ani in good condition. The operative procedures are many, and depend upon the age, and the child bearing period of the patient. Outside of complete removal, which does

not correct the cystocele and rectocele usually present at the same time, there are three operations which have given good results. The one used a great deal in European clinics, except in England and Ireland, is the interposition operation.

The interposition operation should not be done in the child bearing age, unless the patient is sterilized at the same time. It is also contra-indicated if the uterus is too large, there will be a buckling of the uterus, the cervix will be directed in the axis of the vagina and any abdominal pressure will cause it to protrude again from the vagina. If the uterus is too small, it goes through the hiatus of the levator.

In the old, Neugebauer-Lefort operation under local anesthesia is satisfactory. An excision of a rectangular piece of the anterior and posterior vaginal wall is done, and the raw edges of the two denuded areas are united.

Many of the prolapse cases are in child bearing age, and sterilization is not always advisable. There is always an irritation and infection of the cervix, the uterus is not always of the right size suitable for an interposition operation. To correct all these conditions, as well as the cystocele and rectocele always present, the following operation practiced by Jellet of Dublin, further modified by Solomons, the present master of the Rotunda Hospital of Dublin, will be described in detail. It is extraperitoneal, it is done through the vagina, does not prevent a future pregnancy, and does not put the uterus in a new relation to the pelvic organs.

An incision is made in the anterior wall of the vagina from the urethra to just below the attachment of the bladder to the cervix, this incision is continued around the cervix. The vaginal mucosa is stripped from the bladder as in the usual cystocele operation. The uterovesical ligament, a few fibers firmly attaching the bladder to the cervix, are cut in the lower angle of the incision, and the bladder stripped off the cervix for a short distance. The cervix is then amputated with a straight circular incision. A tenaculum pulls the remaining part of the lower end of the uterus upward when the sacro-uterine ligament attachments to the uterus come into view. These are clamped and cut away from the uterus. The posterior vaginal wall is now appoximated to the posterior half of the uterine end, beginning to cover the cervical end and form the new cervical canal. The clamps with the sacro-uterine ligaments are now pulled over the front of the uterus and fastened to the lower end of the uterus. The anterior vaginal wall is now closed. This is followed by a perineorrhaphy.

This operation corrects the cystocele and the rectocele, pulls the lower end of the uterus backward and throws the body of the uterus forward, removes any infected cervix and allows the uterus to rest on the levator in a normal position.

PUBLIC HEALTH NOTES

EDITOR R. P. FORBES, M.D.

Important announcements have been made since attention was called in the December issue to Denver's high infant mortality rate.

Pursuant upon the report of the committee of the Denver Public Health Council recommending that a study of the situation be made, a fund of $7,200 for this study was announced at the January meeting of the Council.

Half of this amount was subscribed by the May Company through Mr. Alfred Triefus, general manager. The company's gift was matched by an equal amount from the Laura Spelman Rockefeller Memorial.

The latter donation of $3,600 was made available through the Department of Statistical Research of the University of Denver School of Commerce, which will have charge of the statistical part of the study. The study will be begun about Feb. 1.

A city-wide campaign conducted through public and private organizations will be made to secure complete birth and death registration of infants. It is planned that

a public health nurse will visit every home in which a birth occurs during the year in order to secure valuable data.

On the basis of the facts determined an adequate program of child hygiene for the city can be planned and developed. According to Dr. D. C. Lochead, deputy health officer of Rochester, Minnesota, the research plan will place Denver in a position of leadership before the whole country in the problem of lowering infant mortality.

As would be expected with such a high infant mortality rate, maternal mortality is also high in Denver—more than twice as high as in the U. S. registration area as a whole. The maternal mortality rate for the U. S. registration area as a whole was 6.6 for each 1,000 live births in 1924 (the last year for which U. S. figures are available). Denver's rate in 1926 was 14.7, Portland's rate for the same year was 6.6, and that of Los Angeles 6.5. Denver's rate in 1927 was 15.8. Like the infant deaths, it would appear that a large proportion of the maternal deaths are preventable if there is early and adequate prenatal care. The task is to find the cause and then to work out a program of prevention.

It is hoped that additional funds may be secured to make a study of maternal mortality along with the one planned on infant mortality.

An international conference for the promotion of infant welfare was held at Stockholm, Sweden, in September, 1929. A report of this conference is given in the December 27 Public Health Report of the U. S. Public Health Service.

One morning session of the conference was devoted to a symposium on school absences. The report from Belgium was particularly complete, and their situation is perhaps more interesting from a medical standpoint than that of some other countries. It was reported that in Belgium 56 per cent of all cases of absenteeism is due to slight or temporary illness of the children, 8 per cent to more serious disorders, 4 per cent is the direct result of communicable diseases in the family, and 4.5 per cent is caused by death in the family group. A total of 72.5 per cent of the absences are brought about by illness of some character. From this study it would seem that effort in the prevention of illness, particularly medical inspection of school children, is not an unimportant weapon in raising educational standards.

LIBRARY NOTES

EDITOR J. J. WARING, M.D.

The fundamental purpose of this column is to give information concerning the library to the members of the Colorado State Medical Society. By "the library" is here meant and henceforth will mean the combined facilities of the Library of the Medical Society of the City and County of Denver and the Library of the State Society. The exhibit of books at Greeley and the advertisements of the library in Colorado Medicine, as well as this column, were all designed to encourage use of the remarkable collection of books and journals housed in Denver.

It is gratifying to record an increasing number of requests for material and the hope is here expressed that these requests will continue to increase steadily in number and importance.

Whenever requests are made for books and journals it is important to be specific. The reference matter on any subject is, of course, very great and unless the field is narrowed, the librarian may be at a loss to make selections. Can your problem then be confined to diagnosis, etiology, pathology, symptomatology or treatment? If so, your wants can be supplied most quickly and most economically.

The other day a man came into the library and galvanized the librarian with this quesiton: "I don't suppose you have a certain copy of the American Medical Association Journal dating back about eight years, do you?"

And the Library boasts complete files of most of the oldest and finest medical jour-

nals ever published anywhere! For example, the files of the London Lancet go back over one hundred years, and mark this, those early numbers made history! If you want to know something of the history of your profession, of medical practice, and of medical education, of the job of coroner, etc., etc., if you want really stirring reading, take out from your library some weekend this book: "The Life and Times of Thomas Wakley" by Sprigge.

REVIEWS

TULAREMIA—by Walter M. Simpson, M.D., published by Paul B. Hoeber, New York. 1929. $5.00.

"Born of a California ground squirrel, discovered in 1910 by McCoy of the United States Public Health Service, elucidated from beginning to end by American investigators alone, prevalent in the United States, Japan, and Russia, tularemia has abruptly become a world-recognized new disease of man and has taken its place in the medical literature of every country."

In these trenchant words, Edward Francis, author of the name tularemia and foremost investigator of this newly recognized but probably old disease of man, introduces this able and comprehensive review by Simpson, who, himself has shown its prevalence for twenty years or more in the vicinity of Dayton, Ohio.

The history of tularemia forms one of the most dramatic stories of modern bacteriology and medicine because tularemia is one of the few diseases of man in which the etiologic agent was discovered in animals long before the human syndrome was segregated as a clinical entity by the medical profession. The newness of its recognition can best be appreciated from the statement that up to 1924 only fifteen human cases had been reported, but since then more than 800 have been recognized in the United States alone. These reports have come from every state in the Union except the New England states, Delaware and the state of Washington.

Tularemia is primarily a disease of wild rodents, particularly ground squirrels, rabbits, rats and mice, but it also occurs in muskrats, woodchucks and black squirrels. It is not known to occur in domestic rabbits, but they and nearly all other rodents are believed to be susceptible to it. The cause, bacterium tularense, has also been found in sheep and opossums. Monkeys, pocket gophers, porcupines, coyotes and chipmunks are known to be susceptible experimentally, but horses, cows, dogs, foxes, hogs, chickens, pigeons, ring-necked pheasants and turkeys appear to be naturally immune. Blue grouse, ruffed grouse, Hungarian partridges and quail, on the other hand, succumb to inoculations and like wild rabbits, probably suffer at times from natural epidemics of this disease. Domestic cats are mildly susceptible and may be responsible for a few cases in man.

From its natural reservoir in susceptible wild animals, tularemia is transmitted to man by deer flies (hence the early name, deer-fly fever), and by wood ticks (tick fever). It may also be transmitted experimentally to animals by bed bugs. It is frequently acquired by butchers and hunters in dressing wild rabbits and has been known for many years to the former as 'rabbit fever."

It manifests itself sometimes as a wound infection, with lymphadenopathy, and high fever, or as a conjunctivitis or lymphangitis, with or without suppuration. The mortality is about 3 per cent, but recovery confers a lasting immunity with demonstrable agglutinins in the blood for as long as twenty years. Convalescence is usually tedious and prolonged. The high susceptibility of man is shown by the fact that there have been twenty-four known cases among highly skilled laboratory workers. No vaccine or serum treatment has yet been found to be effective.

The book is well printed, abundantly illustrated, and probably presents the best and most complete summary of tularemia to date.

IVAN C. HALL.

Secretarial Notes and Comment

Edited by Harvey T. Sethman, Executive Secretary

MEDICAL DEFENSE

The officers hope to incorporate an adequate system of medical defense in the activities of the State Society as an additional service to individual members. A plan of the executive secretary to present a medical defense program to the next annual meeting was approved by the House of Delegates at Greeley last September.

The eight months remaining before the 1930 session give ample time for members and delegates to think this over. If the Society wants a plan of medical defense there are several questions to be answered. What kind of defense system shall be adopted? How much of the Society's funds shall be set aside for the purpose? Shall it be granted to every member or shall members be allowed to accept or reject it, deducting a certain amount from their annual dues if they choose to reject it? Shall the Society contract with an insurance company to carry physician's liability insurance for all members joining in the plan, and, if so, shall this be optional or shall it be made a part of the annual membership? If a plan be adopted, how and by whom shall the details be worked out, and by whom given final approval?

All available information bearing on the subject is being accumulated, bit by bit, by the executive secretary. This includes the plans in operation in other state medical associations, offers from national insurance firms, suggestions from the American Medical Association, suggestions from individuals.

Many members of the Society unquestionably have valuable ideas on this subject. It will assist the officers in learning the wishes of the Society as a whole if these ideas are written down and mailed to the Executive Office, 466 Metropolitan Building, Denver.

Watch succeeding issues of Colorado Medicine for development of the plan.

OFFICERS FOR 1930

Under a separate heading in this department of Colorado Medicine will be found reports of recent county society meetings, including several reports of 1930 elections.

Less than half of the county societies have so far reported their 1930 officers, though most of the elections took place in ample time for reports to be published in this issue.

Blank forms for making these reports were placed in the hands of all county secretaries last autumn. Until they are filled out and mailed to the executive office it is impossible to certify the new county officers to the American Medical Association. Annual elections of the El Paso, Larimer, Morgan and Northwestern societies were reported in previous issues.

ADVERTISING PROGRESS

Last month Colorado Medicine started the new year by publishing more advertising than was published in any month of 1929—despite pessimistic general business forecasts made late in the year.

Contracts now in effect guarantee for the year an increase in advertising revenue even greater than that predicted by the executive secretary's budget presented to the House of Delegates at the 1929 annual meeting.

Aside from assurance that the Journal is headed toward financial stability, this should mean much to the individual member and subscriber. It proves more fully each month that Colorado Medicine is being recognized as the logical medium for talking to the medical profession of the state. It makes possible publication of a larger Journal. It gives additional reason for careful scrutiny of each issue. It becomes easier to find needed products advertised and to patronize Colorado Medicine advertisers in preference to non-advertisers.

We want to hold our new advertisers and make them into staunch friends. The way to hold these advertisers is to give them results. They will naturally and properly demand concrete return for their advertising investment or they will seek some other medium.

When a member of the Colorado State Medical Society gives his business to a Colorado Medicine advertiser and lets that advertiser know why, the member is doing himself a financial favor, for he is part owner of Colorado Medicine. The opposite is equally true. He is also assuring himself of a reliable product; we accept advertising only under the rules of the Councils of the American Medical Association.

In other words, read the advertising pages and act accordingly!

THE COLORADO ASSOCIATION

The Colorado Association's national advertising campaign was launched a few weeks ago. Among the many inquiries resulting from the first appearance of the magazine advertisements was a goodly proportion of questions that could be properly answered only by a physician or a medical society.

Appreciating the need of professional assistance, the Colorado Association offered to turn all such inquiries over to the executive office of the Colorado State Medical Society, to be answered either directly by this office or indirectly through members of the Society as each individual question demands.

Officers of the Society gladly accepted the suggestion, feeling that the work involved on the part of the executive office and on the part of members called upon to co-operate will be more than balanced by the value of having such inquiries answered accurately and ethically by the organized profession. Further, the officers appreciate the action of the Colorado Association in recognizing this Society as the one proper source of such information.

ECHOES FROM THE NATIONAL CONFERENCE OF STATE SECRETARIES

As all members should know, the papers and proceedings of the Annual Conference of Secretaries of State Medical Associations are published from time to time during the year in the American Medical Association Bulletin.

About Jan. 1 the December issue of the Bulletin reached our members. This Bulletin contains two papers and their discussion which in the opinion of the Colorado delegation form as important contributions to the study of problems of medical economics as have been presented in years.

Before the December Bulletin has disappeared from offices, members should avail themselves of a rare opportunity and read these two papers. Those who follow this advice will not need to be reminded to watch succeeding issues of the Bulletin for the remainder of the conference proceedings.

A CLEARING HOUSE

The executive office of the Colorado State Medical Society is fast becoming a clearing house for bringing together corporations seeking physicians and the physicians seeking locations; for bringing together doctors desiring office assistants and those looking for such employment.

Officers of the Society are pleased to include this service in the activities of the executive office. Members are urged to use the service. Offers of one kind or another are always on file, but to avoid embarrassment they will not be published in Colorado Medicine.

MEDICAL SOCIETIES

This department of Colorado Medicine is set aside for reports of recent meetings, announcements of future meetings, and accounts of other important activities of the county and district societies, composing the Colorado State Medical Society. Every meeting of every local society should be reported. If your society is not represented, see that your secretary reports the next one, or that some other member is appointed to the task. Other societies want to know what your society is doing.

Boulder County Medical Society

The annual meeting of the Boulder County Medical Society was held Thursday, Jan. 9 at the Boulderado Hotel, Boulder. Following the dinner the business meeting was opened with the reading of the annual report of the secretary-treasurer, Dr. Margaret L. Johnson, and then officers for 1930 were elected. The new officers are:

President, Carl H. Graf.

Vice President, M. E. Cooke.

Secretary-Treasurer, Margaret L. Johnson.

Board of Censors: F. R. Spencer, O. M. Gilbert, E. B. Queal.

Committee on Public Policy: Carbon Gillaspie, Chairman; H. A. Green, J. A. Matlack.

Delegates: C. W. Bixler. C. E. Sidwell (holdover).

Alternates: C. D. Bonham, H. R. Dietmeier (holdover).

The scientific program consisted of a paper on "Acute Endocarditis" by Dr. L. L. Jones with discussion opened by Dr. M. E. Cooke and a paper on "Biliary Ducts, Anatomy, Physiology and Pathology," by Dr. Carbon Gillaspie with disciussion opened by Dr. C. D. Bonham.

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Weld County Medical Society

Officers of the Weld County Medical Society for 1930 were elected at the annual meeting Jan. 6. The results of the election follow:

President, J. A. Weaver.

Vice President, W. A. Schoen.

Secretary-Treasurer. Florence Fezer.

Board of Censors: N. A. Madler, H. W. Averill, C. B. Dyde.

Committee on Public Policy: W. W. Harmer, E. W. Thompson, E. G. Holden.

Delegates: H. W. Averill, B. Woodcock.

Alternates: O. F. Broman, E. W. Knowles.

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Prowers County Medical Society

Officers of the Prowers County Medical Society for 1930 were elected at the annual meeting Jan. 7. The results of the election follow:

President, C. A. Newland.

Vice President, R. J. Rummell.

Secretary-Treasurer, George S. Williams.

Board of Censors: N. M. Burnett, E. T. Knuckey. F. E. Casburn.

Delegate, N. M. Burnett.

Alternate, R. J. Rummell.

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San Juan Medical Society

New officers for the San Juan Medical Society were elected at the annual meeting in Durango, Jan. 12. Results of the election follow:

President: H. C. Turrell, Durango.

Vice President: C. D. Smith, Kline.

Secretary-Treasurer: R. L. Downing, Durango.

Delegate: A. J. Nossaman, Pagosa Springs.

Alternate: B. F. Walters, Durango.

Board of Censors: R. L. Downing, B. F. Walters, J. C. Darling.

* * *

Larimer County Medical Society

The regular meeting of the Larimer County Medical Society was held following a dinner at the Northern Hotel in Fort Collins, Jan. 8.

Mr. Harvey T. Sethman, full-time executive secretary, gave an interesting talk on his duties, what his office hopes to accomplish the coming year, and assured the members that his office hopes to be of service to every individual member of the State Society. He described a number of the many ways in which his office can be of assistance to members. The talk was so well received that every member present paid the increased dues before leaving the meeting, giving Fort Collins as a city a 100 per cent paid-up membership for 1930.

Dr. George B. Packard, Jr., read a most interesting paper on "Empyema in Children," stressing the surgical aspects.

Dr. Frank B. Stephenson followed with a group of lantern slides on the x-ray aspects of the same subject. These clear and instructive papers made every member feel that the program had been a real education on the subject. Drs. Platz, Little, Gasser, Adams, and Kickland joined in the discussion.

At the business meeting which followed the treasurer reported $84 on hand. The library committee reported 1,000 volumes in the library, now being moved from the City Library to the Larimer County Hospital. One application for membership was received and read. Letters of thanks from the wives of deceased members to whom flowers had been sent for Christmas were read. The Society voted to make the sending of flowers to

wives of deceased members an annual proceeding. Dr. N. L. Beebe was elected to membership on transfer from the Boulder County Medical Society. The Society ordered a committee appointed to investigate systems for collection and report at the next meeting. A vote of thanks was given the Denver members for their fine contribution to the program.

LOWELL LITTLE, Secretary.

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Medical Society of the City and County of Denver

The annual meeting was called to order by President A. J. Markley in the Metropolitan Building assembly room. On motion of Dr. Edward Jackson the Society established a section on Medical History. A resolution by the State Ophthalmological Society, presented by Dr. Donald O'Rourke, was adopted.

The following annual reports were read and accepted: Trustees, by Dr. W. A. Sedwick; treasurer, by Dr. Henry Stuver; board of censors, by Dr. O. S. Fowler; secretary, by Dr. C. Howard Darrow; committee on publicity and education, by Dr. Frank B. Stephenson; committee on public health and education, by Dr. Philip Work.

Dr. Markley's retiring presidential address was devoted to the life and work of Edward Jenner, and was received with great enthusiasm.

The election of officers for 1930 resulted as follows:

President, William H. Halley.
Vice President, Emanuel Friedman.
Secretary, C. Howard Darrow, re-elected.
Trustee, W. A. Sedwick, re-elected.
Member of Board of Censors, T. E. Beyer.

C. HOWARD DARROW, Secretary.

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San Luis Valley Medical Society

The December meeting of the San Luis Valley Medical Society was held at the Silver Grill Cafe, Alamosa. Dr. Thomas Howell of Alamosa delivered a paper on "Sources of Infection," in which he brought out the dangers to children when they are allowed to play in filthy alleys around dump grounds and other places where germs of communicable diseases are numerous. Dr. Charles Trueblood of Monte Vista described a recent trip to Europe which included visits to the principal clinics.

Officers of the San Luis Valley Medical Society were elected for 1930 as follows:

President—C. A. Smith, Monte Vista.
Vice President—E. A. Carmichael, Center.
Secretary-Treasurer — Sidney Anderson, Alamosa.
Delegate—L. L. Herriman, Alamosa.
Alternate—J. R. Hurley, Antonito.

Dr. C. S. Bluemel, Denver, was the principal speaker before the January meeting of the San Luis Valley Medical Society, held at the offices of Drs. Trueblood and Smith at Monte Vista, Jan. 25. Dr. Bluemel presented "Tumors of the Brain and Spinal Cord," and illustrated his paper with a number of x-ray films. He dwelt upon the clinical diagnosis and emphasized the points whereby these diseases may be differentiated from other conditions which give a number of similar symptoms.

Mr. Harvey T. Sethman, executive secretary of the Colorado State Medical Society, was the other speaker, addressing the members on the need of co-operation and active interest in developing the new activities of the Society to the fullest. He outlined the history of the executive office and explained services to members already installed and others now contemplated.

The meeting was preceded by a dinner at the American Cafe in Monte Vista. Twenty members of the Society attended, many traveling forty to sixty miles to take part in the meeting.

SIDNEY ANDERSON, Secretary.

Obituary

R. K. McClanahan

Dr. Rice Kemper McClanahan, long an active and enthusiastic member of the El Paso County Medical Society, died at Beth-El Hospital, Colorado Springs, Jan. 14, following an illness of six months.

Dr. McClanahan was born Sept. 3, 1874, at Brandy, Culpepper County, Va. After completion of his academic schooling near his original home, he attended Jefferson Medical College, Philadelphia, and was graduated with honors. In the Spanish-American war he served as a navy physician, and later served with the army in the Boxer rebellion in China and for a short time in the Philippine Islands. In 1905 he became secretary of the State Medical Board of New Mexico, and practiced in that state until he again entered government service at the outbreak of the World War, this time as a lieutenant-commander in the navy. He retired from the navy after the war and established his home and practice in Colorado Springs.

Dr. McClanahan was elected to the El Paso County Medical Society in 1918, and since that time had been a member of the Colorado State Medical Society and a member and fellow of the American Medical Association.

David H. Coover

The death of Dr. Coover has deprived the Colorado State Medical Society and the Medical Society of the City and County of Denver of one of their oldest and most honorable members. His services to his patients have helped to sustain the reputation of the profession, and his treatment of his colleagues was always above reproach. In his teaching and conduct of his public clinic he steadily kept in view the high standards and efficiency of his profession.

Dr. David Hummel Coover, the senior oculist of our Society, responded Jan. 10 to the summons and joined the immortal throng. He was born in New Cumberland, Pa., Sept. 29, 1852. His father, Dr. Eli Houser Coover, was a graduate of Jefferson Medical College with the class of 1850. Dr. D. H. Coover laid the foundation for his education in the public schools of New Cumberland, and later attended Harrisburg Academy. He received his medical degree from Jefferson Medical College in 1874. He engaged in general practice of medicine in Harrisburg, Pa., for four years. Then, desiring to promote his efficiency by study abroad, he went to Europe and spent two years in Vienna University Hospital and in the hospitals of Berlin and London. Dr. Coover returned to America in 1880, and for ten years engaged in practice in Harrisburg, making a specialty of diseases of the eye and ear. In 1890 he came to Denver, where for forty years he devoted his time and talents to the treatment of diseases of the eye and ear. During this period he served as oculist and aurist in St. Anthony's, Denver

County, Mercy, National Jewish, Women's Maternity, Children's, and St. Luke's hospitals. He was professor of ophthalmology in the Denver and Gross College of Medicine, and later emeritus professor of ophthalmology, University of Colorado School of Medicine. He was a member of the County Medical, Colorado State Medical, Denver Clinical and Pathological, and Colorado Ophthalmological societies; also of the American Academy of Ophthalmology and Oto-Laryngology, the American College of Surgeons, and the American Medical Association.

Dr. Coover wrote numerous articles that were published in medical journals. During his service in the Denver and Gross College of Medicine he built up a very large and interesting eye clinic. Dr. Coover developed a method for destroying the granulations in trachoma known as the Coover sand paper method.

Dr. Coover was bereft of his first wife, Annie G. Gross, to whom he was married in 1881, and of their son, David G. Coover. He has left a devoted wife in the person of Mary Lenore Coover, to whom the Society extends its sincere sympathy during these days of sorrow and bereavement.

EDWARD JACKSON,
WILLIAM C. BANE,
ROBERT LEVY,
ROBERT G. DAVENPORT,
Committee.

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE AND HOSPITALS

(Editor's Note—In order that the profession of Colorado may be better informed about the facilities and activities of its University School of Medicine and its state hospitals, the faculty of the school has accepted the responsibility of providing Colorado Medicine each month with a description of some department or activity of this group of institutions. The following is introductory to this series.)

The title as given above is perhaps new to many of the readers of Colorado Medicine, although it has been in use for some time. It is the official name of the group of institutions on the University campus at Denver, comprising the School of Medicine, School of Nursing, Colorado General Hospital and Colorado Psychopathic Hospital; all under the control of the Board of Regents of the University of Colorado.

All four years of the medical curriculum were united when the new buildings were opened in the fall of 1924. Before that time the classes were small, divided between Boulder and Denvor, and taxed the facilities then available. Since then there has been a steady growth in numbers, until now all four classes have practically reached the limits imposed by available equipment and personnel; fifty for each class. A larger number are admitted to the freshman class than this, that the shrinkage in numbers will not bring the class much, if any, below the limit, in subsequent years. Students who enter each year with advanced standing help care for any loss entailed by the upper classes.

Applications for admission to the present freshman class numbered 271; fifty-five entered. This school, it seems, is becoming more attractive from the increase in the numbers of those who seek admission. The sophomore class numbered forty-eight, junior class forty-nine, and the senior class forty-three, in the fall quarter.

The School of Nursing started last fall with fifty-nine students, in three classes. This school has grown even more than the School of Medicine. The Nurses' Home is already inadequate to care for the student and graduate nurses.

In previous numbers of Colorado Medicine statistical accounts of the activities of the Colorado General Hospital have been given. These figures apply at present, for this institution has been working at or near its capacity, 150 beds, for the past two years.

All counties of the State have been represented at some time among the patients, and while those near Denver have made more use of their opportunities, the distant counties are sending cases more often for hospital care.

From the opening to Jan. 1, 1930, there has been a steady growth in the number of people admitted.

Year	No. Admitted
1925	1,557
1926	1,851
1927	2,139
1928	2,484
1929	2,972
Total	11,003

Such growth if continued will eventually require expansion of the hospital facilities. This was anticipated when the present unit was built, and can readily be carried out when necessary.

In addition, activities of the Out-Patient Department have more than doubled since it was moved from the old location near the business section of Denver. Many thought that patients would not make the longer journey to the present location, but the clinics continue to grow.

Growth of the Colorado Psychopathic Hospital has been phenomenal. It cares for a class of cases previously almost entirely neglected. Organized endeavor to care for these mental and neurological cases has filled it to capacity almost from the beginning. Therefore there has not been a steady growth curve from year to year, as it has been physically impossible to care for more.

Year	No. Admitted
1925	398
1926	522
1927	868
1928	805
1929	830
Total	3,423

Among its many activities are those directed toward the education of the physicians of this state in earlier recognition of psychiatric conditions, and newer methods of treatment. A bulletin issued by this institution on "The Treatment of Neurosyphilis" is available to the profession.

Research is carried on by the staff, also by several Fellows placed here by the Commonwealth Fund of New York. It is interesting to note that this Fund has extended these Fellowships in Psychiatry for another three years; a recognition of the type of work done.

It is impossible to describe all the activities of the schools and hospitals. There is one, while under separate control, that is directed almost

entirely by men of the hospital staffs and school faculty. This is the Child Research Council, founded to study the child from birth to maturity. No consistent work of this kind has previously been done, so this is a pioneer movement.

In future issues an endeavor will be made to describe the activities of various departments, outline research problems, methods of treatment employed, and bring up matters of interest to the practitioners of the state, that they may have a better knowledge of the group of institutions dedicated to preserve the health of the citizens of this commonwealth.

E. R. MUGRAGE.

NEWS NOTES

School of Medicine Spring Clinic

The annual clinics of the University of Colorado School of Medicine and Hospitals will be held on March 26, 27 and 28.

The clinics will include the various specialties, but will place special emphasis on diagnostic methods which may be of interest to physicians engaged in general practice.

Physicians of Colorado and adjoining states are cordially invited.

* * *

None Injured in Woodmen Fire

Utility buildings at the M. W. A. Sanatorium, Woodmen, Colo., were damaged by fire Jan. 22, but the flames did not reach the hospital buildings proper and no one was injured. Below zero temperatures hampered firemen who fought the flames in the early hours of the morning. J. E. Swanger, superintendent, announced that the damage was covered by insurance and that the necessary rebuilding will begin at once.

* * *

Glockner Installs New X-ray

The Glockner Sanitarium at Colorado Springs has completed installation of $7,500 worth of new x-ray equipment. Installation of the new equipment involved remodelling all of the sanitarium's x-ray rooms. The new equipment is to be used primarily for diagnostic purposes.

* * *

Arkansas Valley Medical Society

The mid-winter meeting of the Arkansas Valley Medical Society will be held in Pueblo Feb. 6. Programs will be published about the same time that this issue of Colorado Medicine reaches members. Officers of the Arkansas Valley Society have extended a cordial invitation to all members of the Colorado State Medical Society to attend. It is especially hoped that Denver members will take part in the meeting.

* * *

From Australia

Dr. W. A. Osborne, professor of physiology and dean of the University of Melbourne School of Medicine, Melbourne, Australia, was a Denver visitor Jan. 20 and made two addresses before the profession.

Dr. Osborne addressed the University of Colorado School of Medicine faculty and additional members of the Denver Medical Society at a luncheon at the University Club. His subject was "Application of Recent Advances in Physiology to the Practice of Surgery." Discussion which followed dealt principally with the theoretical principles of physiology and their relation to the symptomatology of disease.

In the evening Dr. Osborne addressed the sixth mid-winter meeting of the Denver Clinical and Pathological Society at the Brown Palace Hotel. For his evening subject he chose "The Physician as a Physicist." He spoke of the beginnings of knowledge of physics and natural philosophy, of the first discoveries of the phenomena of mechanics, magnetism, electricity, light, heat, and sound. In so doing he referred to the epochal revelations of William Gilbert, Thomas Young, Andrews, Draper, and Marat. Dr. Osborne pointed out with pride that these men all were physicians, and as such had not only founded these sciences but in so doing had enriched all scientific literature.

* * *

COLORADO SPRINGS—Dr. S. W. Schaefer has returned from a month's vacation in Baltimore and New York City.

COLORADO SPRINGS—Dr. W. H. Swan left the city recently for a three-month vacation in Arizona.

COLORADO SPRINGS—Dr. J. J. Mahoney is doing two months post-graduate work at the Spiro Heart Clinic in California.

DENVER—Dr. B. A. Filmer has been called into Veterans' Bureau service to relieve temporarily the official at Casper, Wyo.

DENVER—Word has been received from Rochester Minn., that Dr. Grant S. Peck is recovering satisfactorily from a major operation.

PUEBLO—A bronze plaque, bearing the likeness of the late Dr. Richard Warren Corwin, has been presented to the Corwin Hospital, formerly the Minnequa Hospital of the Colorado Fuel & Iron Company. The plaque carries a memorial inscription in honor of Dr. Corwin as founder and chief surgeon.

PUEBLO—Dr. Thomas A. Stoddard has been elected president of the Isaak Walton League of Colorado.

PUEBLO—The recent annual report of Dr. W. E. Buck, city physician, stated that due to an exceptional scarcity of epidemic disease in the city in 1929 the city health department was able to return $2,790 of its $29,000 appropriation, and the City Hospital returned $2,011 of a $5,000 appropriation.

WOMAN'S AUXILIARY

Denver

The annual benefit card party will be given by the Woman's Auxiliary of the Medical Society of the City and County of Denver in Daniels and Fisher's tea room, Monday, Feb. 17. The benefit will take the place of the regular February meeting. Proceeds of the party will be used to increase the scholarship fund created a year ago for local medical students.

The auxiliary has arranged for a course in parliamentary law to be conducted at the home of Mrs. George Miel. Members desiring to join the class should communicate with Mrs. Miel.

MARGARET CORPER,
Publicity Chairman.

* * *

Weld County

The Woman's Auxiliary to the Weld County Medical Society held a Christmas dinner at the Country Club with all the county's doctors and

their wives attending. Everyone enjoyed the holiday affair most heartily. We feel that we are becoming much better acquainted with our professional friends. Dr. W. A. Kickland attended from Fort Collins and expressed a strong wish for advancement of the Auxiliary there. Weld county now has thirty-two active members and five honorary members.

BESSIE G. DYDE, Secretary.

* * *

Pueblo County

An auxiliary to the Pueblo County Medical Society has been organized and placed on an active basis. At the preliminary organization meeting in November, Mrs. J. B. Crouch, Colorado Springs, state chairman of organization, presided. Officers of the new auxiliary for 1930 are:

President, Mrs. W. F. Rich.

Vice President, Mrs. John D. Geissinger.

Recording Secretary, Mrs. Crum Epler.

Corresponding Secretary, Mrs. F. H. Zimmerman.

* * *

Treasurer, Mrs. George P. Pipkin.
Auditor, Mrs. W. S. Johnston.
Parliamentarian, Mrs. R. C. Robe.

* * *

Mrs. F. M. Heller, president of the Woman's Auxiliary of the Colorado State Medical Society, and Dr. Heller were Denver visitors during Stock Show week.

* * *

Dr. and Mrs. J. N. Hall and Dr. and Mrs. Leonard Freeman are taking a mid-winter vacation in Old Mexico.

* * *

Mrs. R. Gilchrist Smith, who has been visiting her daughter, Miss Harriette Smith, in Honolulu, sailed for Vancouver Jan. 24 and will arrive in Denver about Feb. 15.

* * *

Dr. and Mrs. George C. Lingenfelter and Dr. and Mrs. George M. Blickensderfer are vacationing in California.

A RECORD IN CATTLE TUBERCULIN TESTING

Steady progress has been made in the tuberculin testing of the cattle of the United States, and in November, 1929, more cattle were given this test than in any month since the beginning of the eradication campaign. The total number of tests made by state and federal veterinarians in November was 1,207,573. Of this number 17,567, or about 1.4 per cent, indicated the presence of tuberculosis in the animals.

In order to qualify as a modified accredited area, a county must have reduced the extent of tuberculosis among its cattle to the point where not more than 0.5 per cent of the cattle react to the tuberculin test.

Professor Georges Portmann will hold a post graduate five-week intensive course of ear, nose and throat surgery at the University of Bordeaux, France, which commences July 21, 1930. This course is open to American physicians.

For information, apply to Dr. L. Felderman, Mitten Building, N. W. Cor. Broad and Locust Sts., Philadelphia, Pa.

The first international congress on mental hygiene

A preliminary announcement is made of an international congress of mental hygiene to be held this year at Washington, D. C., from May 5 to 10, inclusive. The American Psychiatric Association and the American Association for the Study of the Feebleminded will hold their meetings at the same time and place, in close co-operation with the international gathering. The purposes of the congress are stated to be as follows:

1. To bring together from all countries, at this First International Congress, workers in mental hygiene and related fields, for exchange of information and experience and for mutual consideration of individual and social problems growing out of nervous and mental disease, mental defect and mental and emotional maladjustments of the individual to his personal and social environment.
2. To consider ways and means of world cooperation and of more effective promotion of mental hygiene within the various countries.
3. Through a program planned for the purpose, to endeavor to correlate the special knowledge and experience of psychiatrist, psychologist, psychiatric social worker, occupational therapist, public administrator, educator, sociologist and those of related professions, in determining how best to care for and treat the mentally sick, to conserve mental health.
4. Through discussion and conference, to endeavor to arrive at common agreements concerning sound mental hygiene objectives for the organized movement.
5. Through news and comment resulting from the Congress, to arouse greater world interest in mental hygiene, and secure greater acceptance of the idea that mental disease can, in large measure, be prevented, and that greatly increased governmental and philanthropic expenditures for mental health will find justification in lives saved for productive activity and will be good public policy.

All those who are interested in the mental hygiene movement are invited to attend the congress. Membership without printed proceedings will be three dollars, or, with proceedings, five dollars. Reduced railroad fares are available. Further particulars may be obtained from Mr. John R. Shillady, 370 Seventh Avenue, New York.

French medical dictionary

At the meeting of the French Academy of Medicine held on October 22, 1929, Professor Achard moved for the appointment of a commission to prepare an official French medical dictionary. The motion was accepted and the commission is now engaged in its important task.

THE COLORADO STATE MEDICAL SOCIETY

OFFICERS, 1929-1930

President, William Senger, Pueblo.
President-elect, W. A. Kickland, Fort Collins.
Vice-Presidents, 1st, John B. Crouch, Colorado Springs; 2nd, Burgett Woodcock, Greeley; 3rd, Charles E. Condon, Leadville; 4th, E. H. Munro, Grand Junction.
Secretary, F. B. Stephenson, Denver.
Executive Secretary, Mr. Harvey T. Sethman, 466 Metropolitan bldg., Denver; telephone KEystone 0870.
Treasurer, L. W. Bortree, Colorado Springs.
Delegates to the American Medical Association: Senior, J. W. Amesse, Denver, term expires 1930; Alternate, L. H. McKinnie, Colorado Springs, term expires 1930; Junior, John R. Espey, Trinidad, term expires 1931; Alternate, J. J. Waring, Denver, term expires 1931.

Councilors:

		Term expires
District 1.	Ella A. Mead, Greeley	1930
District 2.	G. P. Lingenfelter, Denver	1934
District 3.	Geo. D. Andrews, Walsenburg	1933
District 4.	W. W. Crook, Glenwood Springs	1931
District 5.	A. J. Nossaman, Pagosa Springs	1932

Constituent Societies, Times of Meeting, 1930 Secretaries

Arapahoe County—Last Monday of each month; secretary, B. G. Carson, Englewood.

Boulder County—Second Thursday; secretary, Margaret Johnson, Boulder.

Chaffee County—First Tuesday of each month; secretary, G. W. Larimer, Salida.

Crowley County—Second Tuesday of each month; secretary, J. A. Hipp, Olney Springs.

Delta County—Last Friday of each month; secretary, Lawrence L. Hicks, Delta.

Denver County—First and third Tuesday of each month; secretary, C. H. Darrow.

El Paso County—Second Wednesday of each month; Secy., W. A. Campbell, Jr., Colo. Springs.

Fremont County—Fourth Monday of each month; secretary, R. Adkinson, Florence.

Garfield County—Last Thursday of each month; secretary, R. B. Porter, Glenwood Springs, Colo.

Huerfano County—Third Thursday of each month; secretary, J. M. Lamme, Walsenburg, Colo.

Kit Carson County—Quarterly, first Monday of December, March, June and September; secretary, Wm. L. McBride, Seibert, Colo.

Lake County—First Thursday of each month; secretary, J. C. Strong, Leadville.

Larimer County—First Wednesday of each month; secretary, Lowell Little, Fort Collins.

Las Animas County—First Friday of each month; secretary, M. C. Albi, Trinidad.

Mesa County—First Tuesday of each month; secretary, A. G. Taylor, Grand Junction.

Montrose County—First Thursday of each month; secretary, F. G. Didrickson, Montrose.

Morgan County—Last Monday of each month; secretary, E. R. Johnson, Fort Morgan.

Northeast Colorado—Second Thursday in each month; secretary, E. P. Hummel, Sterling.

Northwestern Colorado—Second Thursday of each month; secretary, F. J. Blackmer, Steamboat Springs.

Otero County—Second Thursday of each month; secretary, G. C. Gardner, La Junta.

Prowers County—First Tuesday of each quarter; secretary, Geo. S. Williams, Lamar, Colo.

Pueblo County—First and third Tuesday of each month; secretary, George A. Unfug, Pueblo.

San Juan Medical—Second Saturday, January, April, July and October; secretary, R. L. Downing, Durango.

San Luis Valley—Fifteenth of each month; secretary, Sidney Anderson, Alamosa.

Weld County—First Monday of each month; secretary, Florence Fezer, Greeley, Colo.

COMMITTEES FOR 1930

Committee on Scientific Work: Maurice H. Rees, chairman, Denver; Crum Epler, Pueblo; C. Gillaspie, Boulder.

Committee on Credentials: F. B. Stephenson, chairman, Denver; John P. McDonough, Gunnison; C. A. Davlin, Alamosa.

Committee on Public Policy: W. H. Halley, chairman, Denver; Chas. N. Meader, Denver; C. F. Kemper, Denver; Harry S. Finney, Denver; L. H. McKinnie, Colorado Springs; L. E. Likes, Lamar; N. A. Madler, Greeley.

Committee on Publication: C. S. Bluemel, chairman, Denver; Wm. H. Crisp, Denver; George A. Moleen, Denver.

Committee on Auditing: E. D. Downing, chairman, Woodmen; George H. Noonan, Walsenburg; Edward P. Hummel, Sterling.

Committee on Necrology: C. S. Elder, chairman, Denver; G. C. Cary, Grand Junction; Lee T. Richie, Trinidad.

Committee on Medical Education: Edward Jackson, chairman, Denver; W. B. Yegge, Denver; O. M. Gilbert, Boulder.

Committee on Arrangements: Frederic Singer, chairman, Pueblo; R. H. Finney, Pueblo; Harold T. Low, Pueblo; George E. Rice, Pueblo.

Committee on Social Medicine: B. B. Jaffa, chairman, Denver; W. B. Hardesty, Berthoud; George H. Curfman, Salida.

Committee on Medical Literature: W. C. Finnoff, chairman, Denver; A. J. Markley, Denver, Gerald B. Webb, Colorado Springs.

Committee on Hospitals: Peter O. Hanford, chairman, Colorado Springs; R. W. Arndt, Denver; R. P. Forbes, Denver.

Committee on Military Affairs: George P. Lingenfelter, chairman, Denver; Paul M. Ireland, Pueblo.

Committee on Mental Hygiene: F. G. Ebaugh, chairman, Denver; C. S. Bluemel, Denver; Frank H. Zimmerman, Pueblo; Philip Work, Denver; H. A. La Moure, Pueblo; Frank T. Stevens, Colorado Springs.

Committee on Periodic Health Examinations: C. E. Harris, chairman, Woodmen; F. M. Heller, Pueblo; Lowell B. Little, Fort Collins.

Committee on Cooperation with State Pharmacal Association: A. M. Forster, chairman, Colorado Springs; M. C. Albi, Trinidad; Frank J. Blackmer, Steamboat Springs.

Committee on Cost of Medical Care: Maurice H. Rees, chairman, Denver; S. B. Childs, Denver; J. J. Waring, Denver; John B. Hartwell, Colorado Springs; George H. Curfman, Salida.

Committee on Industrial Commission Fees: William Senger, chairman ex-officio, Pueblo; Harold T. Low, Pueblo; John R. Espey, Trinidad; H. G. Garwood, Denver; Crum Epler, Pueblo; William H. Halley, Denver.

Committee on Finance: C. F. Hegner, chairman, Denver; H. R. McKeen, Denver; L. W. Bortree, Colorado Springs.

Curator of Exhibits: E. D. Downing, Woodmen.

Committee on Golf Tournament: H. T. Low, chairman, Pueblo; J. W. Thompson, Pueblo; F. F. Snedec, Pueblo.

WYOMING SECTION

President, C. W. Jeffrey, Rawlins — First Vice President, R. H. Sanders, Superior
President-Elect, E. L. Jewell, Shoshoni
Secretary, Earl Whedon, Sheridan — Treasurer, Evald Olson, Lovell
Delegate to the A. M. A., Geo. P. Johnston, Cheyenne — Alternate, J. H. Holland, Evanston
Councilors: C. Y. Beard, Cheyenne H. L. Harvey, Casper J. H. Goodnough, Rock Springs
Medical Defense Committee: Earl Whedon, Sheridan Chester Harris, Basin F. A. Mills, Powell

EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT

LONG, BEAUTIFUL EYELASHES

When an interne in the Arapahoe County Hospital over twenty-five years ago we noticed the most beautiful pair of long, black eyelashes we have ever seen.

The possessor was a beautiful, frail little child. Since that time we have watched children's eyes and have come to the conclusion that almost without exception children with especially long, beautiful eye lashes are either frail or diseased. And so as the years have gone on we have followed the lives of these little patients only to note the certainty of this warning. We can give no scientific reason why these children should in after life be handicapped by disease, but our own observations have convinced us of the truth of that statement.

Remember this warning and watch your little patients and be on your guard. It's the buz of the rattlesnake. E. W.

COMPENSATION CASES

Today most of the states have state compensation departments which provide indemnity, accident and sickness protection for the employees in the different industries throughout the states.

In addition to these state departments there are many, many large insurance and indemnity companies with millions of dollars of capital whose sole business is to provide this insurance against accident and sickness.

It makes no difference how brainy the officers of these different departments may be, the fact remains, that upon the examination of the average physician, no chiropractors, or any other "paths," the entire plan rests.

Upon the care and help of the average regular physician does the responsibility rest for the care of these sick and accident cases.

It is true that in many states and with all companies the final decision for the amount to be paid is decided either by a judge, trained only in law, a commissioner of insurance or some officer who never has had a medical education.

They in turn must base their awards on the reports of the average physician or surgeon who in the final analysis is, or ought to be, the real judge. And yet we are not always allowed to decide, sometimes because of political pull or union influence and sometimes because of the company's interests.

These often are the real power behind the decision and not the honest opinion of the attending physician.

In honesty we are compelled to admit, with shame, that there are some doctors, so untrue to their duties that they have gone back on the high traditions of our profession and have given untruthful opinions, influencing the discussion one way or the other.

To the credit of the judges of Wyoming we can truthfully say we have never seen a case where injustice has been the result of a compensation case settlement in this state and we rejoice that the mutual co-operation of the Wyoming doctors and judges has always existed and as the years go by this relation will be closer and closer if we doctors but measure up to our duties. E. W.

UTAH WISHES TO JOIN IN THE NEXT YELLOWSTONE PARK MEETING

Officially the State Medical Society of Utah has requested the states of Idaho, Montana and Wyoming to allow the Utah State Medical Society to join in the next Yellowstate Park meeting.

This is welcome news and we feel sure that this request will be gladly granted.

Geographically the members of the Utah Society are as favorably located as those of the three societies which made up the last meeting.

President Dr. W. E. Thayer of the American Medical Association in his annual report to the House of Delegates of the A. M. A. endorsed this meeting as one of the outstanding interstate meetings of the year and advocated more meetings on this plan.

In 1933 we plan to hold our second meeting and it might be possible to have our sister state of Colorado also join with us. We know the states now in this meeting would welcome their joining with us. We all speak the same style of English, smoke the same cigars and have the same conditions under which we live, work and play.

How do the members of the Colorado State Medical Society agree to such a suggestion? E. W.

SHERIDAN IN 1930

The next annual meeting of the Wyoming State Medical Society will be held in Sheridan, July 14 and 15.

Committees are at work on the program, entertainment, hotel accommodations and sports, for this gathering and the outlook for one of the largest state meetings is most promising.

If you have any special guest you would like to have invited to speak or any paper you would like to present at this meeting, please notify the state secretary at once.

Wyoming doctors generally enjoy a fishing vacation and a special committee are arranging to take care of those who will certainly combine the state medical meeting with their annual vacation by arranging for a trip in the famous Clouds Peak Camp, of Senator Willis Spear, way up near the snow line in his famous Wigwam Camp.

This camp can be reached by auto and there can be had some of the most wonderful fishing in the Big Horn Mountains. It's a trip of a life time and you can make it as easy or as thrilling as you like.

Lake or mountain stream fishing is at hand and no vacation can be thought of to compare with that furnished by Senator Spear.

This trip will follow the annual meeting and you can arrange to stay as long as you want and at a very reasonable rate per day.

Golf games will be provided at Sheridan for the golf fans and a special loving cup as a prize will be offered by the State Society. So get out your fishing tackle and golf clubs and arrange to be at the meeting. E.W.

NEWS NOTES

Dr. C. E. Stevenson left the middle of January for a two weeks' trip to Chicago and eastern cities.

At a very interesting capping service the following young ladies were given their nurses' caps in the Sheridan County Memorial Hospital: Miss L. Taylor, Miss Ruth Youngberg, Norine Lee, Myrtle Clark and Alice Greenwood.

Miss Pearl J. Summerford, a graduate of Georgia State Hospital at Middleville, Georgia, has been selected by the hospital board to succeed Miss Veldy as chief nurse.

Miss Marie Munsch, superintendent of the Sheridan County Memorial Hospital, accompanied by her sister, Miss Hilda Wunsch, spent the holidays in Minneapolis and Chicago.

CHEYENNE, WYOMING

At the annual meeting of the Wyoming Health Officers' Association, held at the Capitol, January 6, eighteen of the twenty-three county health officers throughout the state attended the meeting.

The following officers were elected for the next year:

Dr. J. L. Wicks of Evanston ..... President
Dr. N. C. Nelson, Cheyenne ..... 1st Vice President
Dr. J. H. Goodnough, Rock Springs ..... 2nd Vice President
Dr. W. H. Hassed of Cheyenne ..... Secretary

It would seem the sensible thing for the State Health Officers' Association to hold its meetings at the time and place of the Annual State Medical Society as is done in most states. This would assure a larger attendance and at the same time would enable the doctors who are not state health officers to receive the benefits of such a meeting.

These meetings ought to become more useful and helpful as the years go on and surely this would be the case if they occurred in connection with the state medical meeting.

NORTHWESTERN WYOMING MEDICAL SOCIETY, BIG HORN BASIN

Dr. J. R. A. Whitlock was recently called back to his old home in North Carolina, owing to the death of his father.

Dr. W. H. Hassed was in the Big Horn Basin attending to matters relating to his health work during the past month.

Lovell physicians are leading too "fast" lives, it would seem, as Dr. Evald Olson recently turned a complete somersalt with his car, landing on the wheels, with only a slight swelling over one eye for himself and numerous fender bends, a ruined radiator and windows and one front wheel as the total damage to his car. Now comes the report that Dr. E. W. Croft has hit a bridge approach and completely ruined his Studebaker with little or no injury to himself.

Dr. F. A. Mills at Powell recently hit a horse on the highway, which suddenly walked out of the dark on the road, but luckily by trying a side-swipe hit, no injury was suffered by the doctor and a ruined door and side windows was the extent of the car damage. Icy roads have been the rule for some time in the Big Horn Basin and are the cause of many accidents.

Dr. V. R. Dacken recently spent some time visiting in Casper.

Drs. Chester Harris and V. A. Mokler paid Denver a visit, following the health officers' meeting in Cheyenne.

Dr. L. C. Smith is now located at Frannie and will be in line to realize on the oil boom, which, it is reported, is soon to blow in there.

MEETEETSE, WYOMING

Dr. Frank Dunkle is taking a vacation in the East and the honored treasurer of the Wyoming State Medical Society, Dr. Evald Olson of Lovell, Wyoming, is looking after Dr. Dunkle's practice while he is away.

Dr. Olson has gained the reputation of being able to go through more wrecks in a car and yet come out without a scratch than any other doctor in Wyoming. We sincerely hope that the roads will be kind to Dr. Olson in his new location.

"THE WIDAL MEMORIAL"

The following letter was received from past president of the American Medical Association, Dr. W. S. Thayer of Baltimore, Md.:

"December 16, 1929.

"Dear Dr. Whedon:

"The inclosed letter from Abrami, as well as the extract from the later letter of Joltrain, explain themselves.

"Widal's character and his work are surely such as deserve the recognition that his French colleagues desire to manifest. I feel sure that many Americans will desire to take an active part in the work. Will you not join me in interesting our colleagues in your part of the world and in gathering such subscriptions as you can. I shall send Abrami the list of those who agree to help me, and the names of all who subscribe. The sum I shall mention only in case it is above 100 francs ($4.00). We should be able to collect by subscriptions, large or small, something which might help this worthy project. It seems to me that if each one of us, in his respective state, city or neighborhood, would endeavour to reach his friends in any way that he will, we could hardly fail to make a worthy contribution. Will you not help? Many may be able to give but a very small sum. But if enough make even the smallest contribution we shall have done our part.

"I should be glad if you would let me use your name as one of a large American committee of which I am notifying the French committee. Will you not see what you can do in your state?

"Believe me,

"Yours very truly,

"W. S. THAYER."

(Abstract from letter received from Dr. Adouard Joltrain, Dec. 14, 1929)

"The Committee for the commemoration of the contributions to science of Professor Fernand Widal proposes:

"1. To erect a monument to his memory.

"2. To place a memorial plaque in the School of Medicine and in the Cochin Hospital.

"3. To collect his principal works in a special edition.

"Subscriptions of at least 100 francs will entitle the donor to the medal. Any subscription above 300 francs entitles the donor to the medal and the edition of his works."

This means, roughly speaking, that any foreigner who contributes to the fund over four dollars will receive a copy of the medal and that he who contributes over twelve dollars will receive in addition to the medal a copy of the collected works of Professor Widal. While the value of the franc may be safely estimated at somewhat under 4 cents, I have spoken a little indefinitely because no mention has been made of postage. I shall therefore notify the central committee in Paris of the names, addresses and the amounts of all contributors above 100 francs.

"July 30, 1929.

"Dear Colleague:

"The admirers, the friends and the pupils of Professor Fernand Widal have decided to form an honorary committee to perpetuate his memory, and to spread abroad his scientific work. To this end they propose to erect a monument to him, to have made a portrait medallion for the Faculty of Medicine and the Cochin Hospital, and to publish a complete edition of his works.

"A certain number of our foreign colleagues have expressed the desire of joining us in this undertaking, and we have accepted their assistance with pleasure. We should be grateful to you if you would be willing to take the initiative in presenting this subject to those in your country who have had relations with Professor Widal, and who cherish his memory. We should be happy to see them group themselves about you as a committee which will endeavor to collect subscriptions, which will aid us in the accomplishment of the task which we have set before ourselves.

"Pray accept, my dear colleague, the assurance of our distinguished consideration.

"DR. ABRAMI."

Fernand Bezancon ..... 76 Rue de Monceau
Andreé Lemierré ..... 217 fg Saint Honoré
Pierre Abrami ..... 9 rue de Lille
Marcel Brulé ..... 3 rue Dufrénoy
Edouard Joltrain ..... 63 avenue de Villiers
Louis Pasteur Valléry-Root .....
..... 5 avenue Constant-Coquelin

Colorado Medicine

Owned and Published Monthly by The Colorado State Medical Society

G. A. MOLEEN, M. D., Denver
Scientific Editor
J. ROSSLYN EARP, Dr. P.H., Denver

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EDITORIAL NOTES AND COMMENT

ETHICS OF ADVERTISING

On Deeember 23 last, Mr. William S. Cady, the business manager of The Rocky Mountain News, rebuked the medieal profession in an address to the Osler Club with "failing to employ the mighty forees of advertising." He did not defend the present-day style of retail advertising, but believed that the ethies of advertising were undergoing a radieal ehange. "Primarily," he said "advertising is an educator and an informer." But he made it plain that informative advertising is as one figure in glittering white amcng five thousand dressed in black.

The annual cost of advertising to this eountry has been estimated by Edward Bok[1] to exeeed one and a quarter billion dollars. Stuart Chase[2] states that advertising had its birth in the patent medieine industry and is still trying to live down its anteeedents, that it ereates no new dollars but merely transfers purehasing power from "A" to "B", and that this competitive effort spent in shuffling trade represents an annual waste to the nation of the labor power of upwards of six hundred thousand workers. For a full exposure of the evils of competitive advertising, the reader may well refer to Chase's exeellent essay. We have quoted enough to demonstrate that, in declining to adopt the methods of competitive advertising, the medical profession has aeted not so much in its own interest as in the interest of the publie. It requires very little intelligenee to understand that the qualifieations for boosting oneself in print do not eorrelate very elosely with the qualifications that are needed to heal the siek.

But Mr. Cady has turned his baek upon advertisement for eompetition and eommends advertising for information. We had supposed that the publishing of information was the principal funetion of the news eolumns and editorial eolumns of the daily paper. In so far as the editors may laek the technical knowledge to put before their readers reliable information on matters affeeting the publie health, they will, we are sure, find that the medical profession is always ready to lend their co-operation.

And we would be prepared to go further. There are eertain classes of information whieh, in the public interest, we are very desirous of promulgating. One of these is the importanee of the periodie health examination, a subjeet on whieh Mr. Cady himself laid very proper emphasis. Another is the urgent responsibility of parents to see that their ehildren are protected against diphtheria. In both these matters, private physieians have found themselves embarrassed, however unselfish their motive, in urging upon their patients a proeedure for which they will have to charge a fee. We believe that public advertisement by the medieal societies of sueh matters as these is sound in ethies, a wise policy, and already endorsed by ample precedent. The medieal profession has never opposed informative advertising that is truthful and free from the eompetitive element, and we hope it never will.

[1]Bok, Edward: The Day of Advertisement, Atlantic Monthly 132: 533 (Oct.), 1923.

[2]Chase, Stuart: The Tragedy of Waste, Chap. VII, An Analysis of Advertising, Macmillan, 1925.

THE PHYSIOLOGY OF THE KIDNEY

That "physiology is medicine," is beyond dispute but it does not in any way imply that medicine is, as it should be, based on physiologic fact. That this is the fault, not of medicine but rather of the paucity of correct and accurate knowledge furnished us by the workers in the field of physiology is also undoubtedly true. For this reason, all new work in the field of physiology, even though it lead to no immediate certainty, is highly appreciated by the entire medical world.

In 1842, Bowman published his deductions from a very careful study of the anatomy of the kidney. While his ideas have been modified and added to, they have not been positively disproved. The brilliant Heidenhain, in various publications from 1874 to 1883, elucidated and elaborated Bowman's theory so that it became more acceptable. His work has in no way been controverted by the five hundred or more excellent publications on this subject since his time.

Between 1844 and 1856 Ludwig and his pupils put forth the idea that all excretion from the blood into the urine occurred by way of the glomerulus, many substances being excreted by the glomerulus which never appeared in the voided urine. They explained the function of the highly developed epithelium of the tubules by supposing that the entire structure of the tubule, including the proximal convoluted portion, the loop of Henle and the distal convoluted part, was for the purpose of returning to the blood those substances which do not appear in the voided urine, but which they imagined were thrown out of Bowman's capsule. Supported by much experimental work and sponsored by the eminent Ludwig, this theory held the center of the stage from 1844 until 1883, when Heidenhain's conclusions, disagreeing with Ludwig's, confirmed and properly elaborated Bowman's original ideas.

The pendulum of thought in this field never swung away from Heidenhain's ideas until Cushny, in 1915, impressed with Ludwig's erudite and brilliant work, and stimulated by Starling, published his "Modern Theory of the Secretion of Urine," swinging back to Ludwig's ideas with the further support of the physico-chemical knowledge of his time. Despite the complete review by Cushny of the work of his predecessors, the reader realizes that his work is almost entirely an argumentative dissertation which rather cavalierly discards such past work as does not match the brief. When it pleased him to accept "facts" deduced from the work done on the kidneys of frogs, he, like his predecessors, accepted such work, and when these efforts did not jibe with his own thoughts, he discarded them.

Recently MacNider has demonstrated that, in dogs, uranium nitrate destroys the epithelium of the proximal convoluted tubule. Following this he showed that the excretion of phenolsulphonaphthalein and non-protein nitrogen was markedly reduced in the dogs so treated by uranium nitrate. Since the dog has a metanephros, or true kidney, it impresses us deeply that here is a decided advance in the physiology of the kidney. Many other interesting observations regarding the function of the kidney, as well as the repair thereof after complete damage to its epithelium, will be found in this most excellent and painstaking work.

Another important contribution to the physiology of the kidney during the last year is the work of Joelson, Beck and Moritz on renal counterbalance. This brings evidence against the thesis of Hinman that if a kidney be injured in its function and its duty be compensated for by its fellow, then, even though the injured kidney be placed in a position to resume its function, it never can do so once its mate has assumed the burden. The work of Joelson and his colleagues seems to show that when a kidney has assumed the function of its mate, such mate will recover its function upon being relieved of its oppression. We would much rather believe Joelson's results than Hinman's because if Hinman's views be correct, all attempts to repair an injured kid-

ney by plastic operation are of doubtful value.

However the work of Hinman was perhaps as admirable as this later work with its more hopeful conclusion. We shall await impatiently new evidence upon the subject.

W. M. S.

MINERAL MAGIC

The purveyors of secret remedies meet with little resistance. The public is ignorant of pharmacology and uninterested in knowing what the remedies may contain. Glowing testimonials can always be obtained for any cure. The one line of sales talk necessary to insure success and to make a fortune is a romantic story. In Colorado there is a disposition to capitalize the natural splendor of the Rocky Mountains. Surely it is not surprising that the hills to which we lift up our eyes should benefit us if we could put a little of them, nicely powdered, into our stomachs. Among others to whom this thought has proved inspiring, are the proprietors of Kolorok, somewhat akin, we suspect, to a previous cure-all that was known as Mother Nature's Marvelous Powder. There is evidence that both of them emanate from Durango. Kolorok has been announcing itself quite widely in recent weeks. "Nearly everyone who takes Kolorok for stomach trouble finds that other ailments clear up almost before they know it. . . If you have any symptoms of any sort of kidney trouble, try Kolorok at once. . . . Our experiences with Kolorok show that these inflamed and diseased conditions (hemorrhoids) have their origins in impure blood. . . Use Kolorok pile cones for quick relief from pain. . . Results obtained by those using Kolorok for rheumatism convince us that at last both the cause and the cure have been discovered. . . For quick relief from surface itching, apply Kolorok Salve to the itching sore surfaces." We are told that a gigantic deposit of Kolorok lay hidden in the Colorado hills until five years ago. Mother Nature's Marvelous Powder seems to have had a similar origin. The laboratory of the American Medical Association determined that it was essentially a mixture of gypsum and chalk.

Other mineral wonders are available for the more credulous citizens of the state. For the moment we have said enough. Reputable physicians are not likely to be hoodwinked by their specious and extravagant claims. Yet each may do his part in warning the public against the dust that is being thrown into its eyes, as well as plastered in ointments upon its skins, or inserted with cocoa butter into the last inch or so of its alimentary canals.

CONTRACT PRACTICE

An esteemed contemporary raises in its February issue the highly controversial subject of "contract practice."[1] What exactly do these words mean as they occur in the "Principles of Ethics" of our national society? Our contemporary lists a number of examples of what are undoubtedly contract practice, but practice of so respectable a nature that it is never called in question: the health officer of county, city or school and the insurance medical examiner to whom there might have been added all medical employees of the federal government. There are other forms of contract practice the status of which is more questionable. In industrial medicine the United States has been something of a pioneer and it is now ten years since the results of an inquiry made at the behest of the Belgian government was published in Europe.[2] But, although he may have inspired abroad that imitation which is the sincerest form of flattery, the industrial physician is not yet given full honor in his own country. Another American pioneer is the college physician. His influence, we are convinced, will one day be impressed for great good upon all the countries of the world. But he, too, has been accused of undertaking contract practice. No doubt that he is guilty. Just what ought we to do?

[1]Editorial, Journ. Med. Soc. New Jersey, 27:144 (Feb.), 1930.

[2]Sand, René: Organisation Industrielle Médecine Sociale et Education Civique en Angleterre et aux Etats-Unis Brussels, 1920.

INTERCOSTAL NEURALGIA OF THE ABDOMINAL WALL*

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Abdominal pain and tenderness, whether acute or chronic, are located far more commonly in the anterior abdominal wall than in the abdominal viscera and failure to appreciate this fact leads to many fallacious diagnoses and futile operations. Medical literature as a rule fails to recognize the abdominal wall as a source of pain and tenderness except for some mention being made of Pott's disease and pneumonia causing abdominal sypmtoms. The medical journals contain only a few papers devoted to one or another narrow phase of this subject. It is difficult to find these articles as they appear under very diverse titles.

In a series of 87 cases of spondylitis Vanderhoof found 40 who complained of abdominal pain. In 17 of the 40 patients the presence of visceral disease could be demonstrated and the rôle played by the spondylitis was either questionable or negligible. In 23 patients careful and complete studies excluded visceral disease as a cause of the patients' complaints. Abdominal pains were increased by physical activity and were relieved by fixation of the spine.

Dickson and O'Neal reported one case each of cholelithotomy, nephrolithotomy and perineorrhaphy in which a persistence of symptoms after operation led to the discovery of spondylitis in each as the underlying cause of the abdominal pain and tenderness.

Chute reported 5 cases of osteoarthritis of the spine in which the referred pains simulated lesions of the kidney, prostate or seminal vesicles.

Goldthwait has frequently described various orthopedic conditions of the spine which cause abdominal pain and tenderness. The reading of his papers leaves one under the impression that he locates the pain and tenderness in the viscera but in a personal interview he states that the parietal nerves are commonly affected and they not only exhibit sensory disturbances but may less frequently display motor disturbances. Goldthwait believes that the primary factor in producing parietal pain is faulty body mechanics, that once the common relaxed posture has become the habit there must naturally be sagging of the organs with lowering of the diaphragm which means poor general circulation and passive congestion of the tissues. Infection then easily occurs and is present as a spinal arthritis in many of the cases.

In an excellent paper by a member of your Society, Tennant has shown that the orthopedic correction of faulty bodily postures has resulted in curing abdominal symptoms which were not altered by various earlier intra-abdominal operations.

Knappenberger reports seven cases of spinal nerve radiculitis simulating visceral disease. He states: "It is easy to see how a localized area of skin hyperesthesia might be diagnosed pleurisy, heart disease, ulcer of the stomach, gall bladder disease, appendicitis, kidney disease, spermatic cord disease and a host of other things. In fact all these diagnoses had been made in the series reported here."

Gunther has studied the radicular syndrome in thirty cases of hypertrophic osteoarthritis of the spine and finds that involvement of various spinal roots gives symptoms strongly suggestive of visceral disease such as gastric disease, gall bladder disease, chronic intestinal obstruction, chronic pancreatitis, chronic appendicitis and chronic adnexal disease.

Woltman states that a practice which leads to diagnostic error in pain complaints is the custom of visualizing such structures as the liver and stomach underlying the pain area and of habitually disregarding the nervous system. He has found that root pains are often erroneously interpreted as pleurisy, pericarditis, appendicitis, cholecystitis and kindred abdominal conditions.

*Read before the Colorado State Medical Society, Greeley, Colo., Sept. 3, 1929.

Janowski states that neuralgias of the abdominal wall are very common and simulate a great variety of intra-abdominal affections among which he summarizes cholelithiasis, floating kidney, nephrolithiasis, organic gastric diseases, chronic appendicitis, chronic parametritis and painful affections of the intestines.

Franke has found that acute or chronic influenza may cause neuritis of the ilio-hypogastric and adjacent parietal nerves which frequently give rise to acute or chronic symptoms resembling appendicitis, gall bladder disease and gastric ulcer. Franke himself has had an acute toxic parietal neuritis strongly suggestive of an acute attack of gall stones.

Austin discusses "iliohypogastric hyperesthesia" as a cause of pain and tenderness which simulate tubo-ovarian disease and lead to many futile operations on the tubes and ovaries.

Brandt calls attention to the simulation of appendicitis by neuralgia of the iliohypogastric nerve.

Baum discredits Head's theory of visceral disease giving rise to parietal symptoms. He finds that intercostal neuralgia produces abdominal pain and tenderness which may simulate various visceral lesions but which can be cured by paravertebral injections of alcohol.

Clinton describes an injury to the eleventh and twelfth intercostal nerve trunks due to pinching between the rib tips and iliac crest. The lesion is usually right sided and causes abdominal pain and tenderness. The patients commonly have had a futile appendectomy. Cure is obtained by excision of the offending rib tip and resection of the bulbous portion of the nerve. I have not recognized any of his type of cases. In the discussion of Clinton's paper, McKinnie referred to the great frequency with which patients having pulmonary tuberculosis with abdominal symptoms have had appendectomy without relief.

Blanton describes a case of herpes zoster of the tenth left intercostal nerve which simulated nephrolithiasis prior to the appearance of the vesicles. The pain radiated around the left side as far as the left mid-Poupart's line. Cystoscopy and pyelograms were negative. The herpetic eruption finally appeared on the seventh day. Other writers describe similar cases in which the pain and tenderness of herpes zoster in the pre-eruptive stage have simulated various intra-abdominal lesions.

Pray reports three cases of intercostal neuralgia which simulated intra-abdominal lesions and which were diagnosed by tests I had described. Cottrell has recently presented a paper along similar lines.

Piersol, Bockus and Shay state they attach considerable importance to the tests for parietal neuralgia before arriving at a diagnosis of biliary disease.

The predominant symptoms of the parietal neuralgia syndrome are pain and tenderness. The spontaneous pain may be roughly classified into four groups:

(1) In its severest form, which fortunately is relatively rare, the pain may be as distressing as any colic or strangulation requiring large doses of morphine for its control and yet patients seem to find difficulty in describing its characteristics. They may use such terms as "tearing apart," "tearing of flesh," "stabbing," "grinding," or they may describe either one of two types of extreme tension. In the compression type of pain the abdomen feels as though it were being viciously squeezed in a vise, whereas in the distention type of pain the sensation is comparable to a distended balloon situated inside the abdomen. The compression pain is described by one patient as a sensation similar to a bolt passed through the abdomen with the nut being vigorously tightened. Another patient analyzed her sensation as similar to being squeezed between the male and female blades of a huge potato-masher and she could feel her skin projecting through the perforations. Patients with pain at the lower costal margin at times complain of a sensation of being unable to breathe, and they fear to move, resembling in these respects as well as in the vise-like compression, the picture

ascribed to angina pectoris. Patients having a sensation of distention belch repeatedly, induce vomiting and take repeated enemas in the vain hope of relieving their distress. A minor percentage of them keep on a continuous move and cannot remain in bed. One such patient states that when the pain is at its height in severity she races around her home like a mad woman upsetting chairs and bumping into furniture.

(2) A less agonizing but fairly common and distressing form of pain is described as "shooting," "knife-like," "lightning-like," "stabbing," "jumping," "pounding," "cutting," "burning," "colicky," "cramp-like," or in similar terms indicative of lancinating pains.

(3) A milder form of pain that is the most frequent and that is usually tolerable except for its long duration or the fear of its being indicative of an intra-abdominal lesion is described as a "drawing," "pulling," "dragging," "throbbing," "pressing," "aching," "cutting," "sickening," or "bloated" pain.

(4) In its mildest form the pain may resemble an "ache" or "soreness" or may consist of "burning," "pins and needles" or other mild parasthesias.

These four types merge into one another and a few patients may exhibit each of the four types at different times. This holds true especially of the patients who have had the severest form as with improvement they frequently pass through the lesser grades before full recovery from the pain. On the other hand the majority of patients continue to complain indefinitely of the one type of pain when the latter is chronic.

When asked to describe the character of abdominal pains the average patient seems content to state simply that they are either "gas pains" or "indigestion pains" and he needs to be prodded into giving a more precise description. Often the term "gas," "indigestion" or "colitis" pains has been suggested by a physician.

The cases of intercostal neuralgia which seek my surgical advice are those having spontaneous pain in the abdomen or female breast. Many of them have similar milder neuralgic pains in other parts of the body. When their pains are maximal or present only in regions other than the breast and abdomen they consult other specialists. The study of superficial pains is a subject of importance to every specialist. A large proportion of headaches are scalp aches rather than brain aches. The former group of patients often give a history of scalp soreness on combing or running their fingers through the hair, some cannot endure the weight of the head with the affected scalp region resting on the pillow. The affected area is more sensitive to firm pressure over the regional nerve as for instance over the supraorbital nerve in frontal headache. Neuralgic tenderness as shown by pinching the skin and fat just below the mastoid process is often mistaken for tenderness in the mastoid itself, especially in acute suppurations of the middle ear which are often accompanied by toxic neuralgia of the cervical as well as more distant nerves. Pressure on the mastoid cannot be made without exerting a pinching pressure of overlying sensitive skin and fat. Tenderness elsewhere, especially in arms and legs, suspected of being osseous, will often be found to be neuralgic when its presence is sought in skin, fat and muscles by pinching.

Neuralgic pains in the chest wall are often mistaken for pleurisy, pleural adhesions or pulmonary lesions and, especially if an arm, particularly the left, is also involved unwarranted diagnoses of angina pectoris due to cardiac or aortic lesions are too frequent. Parietal neuralgia often affects the domains of the urologist and gynecologist. Parietal neuralgia constitutes one of the forms of dysmenorrhoea. Investigation in cases in which the patient complains of undue pain from a trivial cause as diagnostic percussion, removing sutures or pulling adhesive plaster from the skin often leads to the discovery of parietal neuralgia.

The pain and tenderness of parietal neuralgia may affect any part of the abdomen depending upon the particular nerve or nerves involved. It is far more common on

the right side than on the left, but is frequently bilateral. The pain may occur in acute attacks, may be constant, or may exhibit remissions or intermissions. It is a common cause of pain which awakens the patient during the night. The spontaneous pains vary greatly in intensity in different patients and even at different times in the same patient.

The entire nerve supply of the lateral and anterior abdominal wall comes from the seven lower intercostal and first lumbar nerves. I use the terms intercostal neuralgia and parietal neuralgia as synonyms to include every condition which may cause pain or tenderness in any one or more of these nerves. Usually pain and tenderness are due to neuralgia and only rarely does a microscopic examination of an excised nerve specimen show true neuritis.

The clinical differentiation between neuralgia and mild neuritis is impossible in the great majority of cases in which the reactions of degeneration are absent. Many clinicians state that tenderness of the nerve trunk should be regarded as evidence of neuritis, but I have frequently seen tender intercostal nerves which failed to show any microscopic evidence of disease.

Intercostal neuralgia, in the faulty sense in which I use the term, may be due to a great variety of causes and is a symptom complex rather than a disease per se.

Acute attacks of abdominal intercostal neuralgia, simulating various acute intra-abdominal lesions especially appendicitis, are usually due to acute toxemias from any cause but particularly from infections of the upper respiratory tract. At the onset of the neuralgia the leucocytosis, fever and pulse hurry of the underlying toxemia are still present and are often wrongly ascribed to a non-existent lesion of the abdominal viscus underlying the area of parietal pain. Patients occasionally ascribe the abdominal pain and soreness to the muscular exertion of antecedant coughing but as a rule they do not blame these symptoms on the recent "cold" and almost never volunteer having had a recent infection but readily recall it when specific inquiries are made.

Any other acute infection may cause intercostal neuralgia. Basilar pneumonia and basilar pleurisy may cause homolateral abdominal pain and tenderness and not infrequently rigidity. At this time I have under my care cases of acute parietal neuralgia due to boils, to osteomyelitis of the jaw and to a small area of gangrene with localized infection in a recent amputation stump of the thigh. Occasionally acute attacks of toxic parietal neuralgia occur in cases in which the origin of the fever, pulse hurry and leucocytosis cannot be determined.

Tumors and other lesions of the spinal cord are occasional causes of neuralgia, usually in chronic rather than in acute form.

Various forms of acute spinal meningitis may cause acute neuralgia which in turn may be slow in clearing up. Transient attacks of acute parietal neuralgia may be caused by subcutaneous injections of various sero-bacterins.

Herpes zoster causes acute parietal neuralgia. I have never had the good fortune to see a case of zoster in the pre-eruptive stage. My associate, Dr. George M. Laws, predicted the appearance of herpes in a case of acute pseudo-appendicitis sixty hours before the vesicles appeared,—at which time he kindly exhibited the patient to me. Dr. J. W. McConnell has had his prediction of herpes verified in several cases in which parietal pain and tenderness of the chest or abdomen were unusually severe. I have had two cases of acute pseudo-appendicitis referred to me for appendectomy shortly after the appearance of typical herpes which the attending physicians had ascribed to an ice cap applied at home. In all the cases of extensive herpes of the chest or abdomen in which I have seen the vesicles or the scars caused by them the lesions have been distributed in a transverse band and have not, as so often claimed, followed the oblique course of an intercostal nerve. In two unilateral chest cases which I had skiagraphed after the application of a lead wire over the

middle of the eruption band the wire was shown to cross five interspaces. This type of distribution seems to be utterly antagonistic to the theory that herpes zoster is caused by an inflammatory lesion of the ganglion on the sensory root of an intercostal nerve. Various writers ascribe the transverse distribution to a vascular or lymphatic lesion but I am inclined to agree with those who regard herpes as a lesion of the cord,—probably an acute posterior poliomyelitis. Often the attack of herpes ushers in a parietal neuralgia which may extend far beyond the limits of the eruption and persist for months or years.

Trauma, especially fractures of a vertebra or rib may cause direct bony irritation of a nerve or more frequently they or a sprain of a vertebral joint may lead to nerve pressure from hemorrhagic or inflammatory exudate. Falls on the buttocks or feet with jarring of the spine or twisting injuries of the spine may result in widespread parietal neuralgia of typical character as shown by the tests but which is commonly regarded as a vague sort of "traumatic neurosis" or of "industrial compensation malingering."

Acute attacks of toxic parietal neuralgia occur in individuals of perfect physique but they are far more common in the sub-standard groups that are prone to chronic parietal neuralgia. Many patients give a history of recurrent acute attacks from causes previously mentioned before their pain and tenderness became chronic and continuous. Patients having an underlying cause for the ultimate development of chronic neuralgia frequently have acute attacks from mild causes, such as excessive exercise, jarring of horseback or automobile riding, menstruation, or fatigue at the close of daily labor.

Chronic intercostal neuralgia of the abdominal wall is usually symptomatic of some abnormality of the vertebral column,—most commonly scoliosis, excessive lumbar lordosis or spinal arthritis. Routine examination of spines reveals a very high percentage of cases of mild scoliosis especially so in cases of parietal neuralgia. Piersol and Davis state in their books on anatomy that a slight degree of thoracic scoliosis with convexity to the right may be considered as normal but I believe that scoliosis of any degree should be regarded as an abnormality. The neuralgic symptoms appear as a rule on the concavity. I have seen right lower abdominal and upper left thoracic neuralgia in several cases in which the skiagraph and physical examination revealed double (compensating scoliosis. That the nerve irritation is not due directly to bone impingment seems borne out by absence of neuralgia in the majority of long standing cases of excessive scoliosis and by finding occasionally that the neuralgic symptoms are on the convex side of the scoliosis. The nerve irritation is probably produced by an inflammatory exudate into the intervertebral foramina incident to strain of the adjacent joints between the transverse processes.

Excessive lumbar lordosis is one phase of the visceroptotic habitus. It is frequently associated with neuralgia of the abdominal parietes and various forms of indigestion. I have discussed this condition in a paper on "chronic strain of the lumbar spine and sacro-iliac joints."

Intercostal neuralgia of the abdomen may be caused by any form of spinal arthritis but most commonly by the hypertrophic osteoarthritic form. The latter is the most common cause of the upper abdominal neuralgia which simulates gall bladder disease. Bone spurs may encroach on the intervertebral foramina but they are a rare rather than a common cause of neuralgia. Roentgenograms taken at a correct angle have demonstrated bone spurs invading the foramina in the cervical region. Similar spurs occur in the foramina of the thoracic spine but technical difficulties prevent their visualization by the x-ray. In the lumbar spine the foramina are readily shown by x-ray but they are so large that bone spurs seldom cause pressure neuralgia. Many writers believe that the sensory disturbances as observed clinically bear a direct relation to the location and extent of the bone changes in spinal hypertrophic arthritis as shown by the x-ray but that has not been the experience of Gunther and

myself. In the early stages of arthritis the nerve symptoms may be marked and roentgenographic changes trifling whereas in late stages the spine may exhibit extensive bony ankylosis without involvement of sensory nerves. In many cases the level of most marked bone changes does not correspond to the level of the spinal segment nor of the spinal nerves showing the maximum sensory disturbance. Adson and others have noted that extensive bone hypertrophy as shown by operation often is not indicated by the x-ray.

I agree with Nathan that the nerve irritation in spinal arthritis is due to an inflammatory exudate in the intervertebral foramina or in the epidural space pressing on the spinal nerves or their roots. This early inflammatory exudate may subside in the later stages with disappearance of sensory symptoms or it may undergo organization with prolongation of symptoms. The extent of bone changes as shown by the x-ray is therefore not an index of the severity of the referred sensory symptoms.

Pott's tuberculous disease of the vertebrae is a familiar example of abdominal symptoms caused by pressure on intercostal nerves at their origin.

Malignant disease, whether primary sarcoma or secondary carcinoma, of the vertebrae and adjacent soft tissues frequently produces pressure on the spinal sensory nerves. Invasion of the malignant cells into the soft tissue including the nerves or their roots is a more common cause of sensory disturbances than is the destruction and crumpling of the vetebrae.

Pulmonary tuberculosis, in both active and latent forms, is a fairly common cause of chronic neuralgia of the abdominal wall. Chronic parietal neuralgia is occasionally caused by anemia, a blood dyscrasia, diabetes, arsenic, lead and alcohol.

I had anticipated finding that syphilis is a frequent cause of intercostal neuralgia but this assumption has not been confirmed by my own clinical experience. Early cerebro-spinal syphilis has been searched for diligently but it has proven an almost negligible factor as a cause of intercostal neuralgia in my cases. Late syphilis is not a common cause. In the majority of the neuralgia cases that have a positive Wassermann there is usually associated a localized osteoarthritis of the spine probably due to syphilis, and either the bone changes or more likely the soft tissue exudates incident therewith produce the nerve irritation. Several writers on radiculitis specify syphilis as a frequent cause of sensory symptoms in their cases. I have not seen enough cases of gastric crises due to spinal syphilis in recent years to arrive at any definite conclusion as to whether or not some of the symptoms may be due to intercostal neuralgia. It is interesting to note that the girdle pain of gastric crises,—like the eruption of herpes zoster and like the levels of hyperesthesia, hypoesthesia and anesthesia in transverse lesions of the spinal cord,—does not follow the oblique course of the intercostal nerves but runs at a right angle to the spine.

Many of the cases of chronic parietal pain and tenderness give a history of acute recurrent attacks extending over a period of months or years before the symptoms became constant. In the early stage of these cases two factors were responsible for the symptoms. One factor consisted of some one of the lesions which cause chronic neuralgia and which acted either as a predisposing cause or more often as an actual active cause in producing low grade symptoms consisting of objective tenderness without subjective pain. Many such cases of mild symptoms are encountered in routine examinations of patients having scoliosis, hollow back or chronic arthritis, and who later develop for the first time the subjective or spontaneous pain of an acute attack. The primary and subsequent acute attacks are precipitated by some one or more of the causes,—usually an upper respiratory tract infection — which produce acute parietal neuralgia. Under these circumstances the objective tenderness may persist long after the subsidence of an acute attack. Ultimately the chronic lesion progresses and causes continuous neuralgic pain and tenderness. Acute exacerbations

then result from any intercurrent cause of acute neuralgia.

Each of the seven lower intercostal nerves sends branches to the chest and to the abdomen. Both sets of branches may be affected simultaneously by neuralgia especially in hyper-acute cases but in the majority of cases the neuralgic symptoms of pain and tenderness found in the abdominal distribution are absent in the chest distribution. This clinical fact implies that the anterior (abdominal) branch is commonly subjected to more irritation than is the lateral (chest) branch of any given intercostal nerve or nerves. It has been suggested that the common cause of neuralgia in the abdominal wall is pinching of the intercostal nerve between ribs which are in unduly close contact with one another. This may be a factor in certain exceptional cases in which the lower ribs are crowded together. It is not unusual, however, in cases in which the lower ribs are in close contact to find evidence of neuralgia in the form of nerve trunk tenderness in the uppermost interspaces which retain their normal width. Ordinarily in parietal neuralgia the interspaces between the lower ribs are normal or increased in width so that the nerves cannot be pinched between adjacent ribs, hence some other factor must be responsible for neuralgia predominating in the abdominal distribution.

I believe that the main underlying causes of parietal neuralgia are acute toxemias and spinal lesions which give evidence of irritation of the nerve as a whole. The commonly encountered superadded irritation of the anterior branches of the intercostal nerves supplying the abdominal wall seems best explained by Valliex's findings that "tender points" representing increased irritation are found along the course of nerve trunks and their branches at the sites at which they emerge from bony canals, pass through fascias, aponeuroses or muscles or terminate at the skin. It is my unproven theory that an irritation extending to the nerve terminals is added at each one of these "tender points." The nerve irritation is provoked by the muscular activity of moving, breathing, coughing, etc. The sensory terminals exhibit an amount of hypersensitiveness equal to the sum total of the irritating factors along the entire course of the nerve and its roots. Hyperesthesia of intercostal nerves being more pronounced over the anterior (abdominal) branches than over the lateral (chest) branches is therefore explained by the former branches being longer, passing through more layers of fascia and supplying the more mobile abdominal wall. This theory would account both for the terminals being more sensitive than the trunks and for unequal sensitiveness in areas supplied by different branches of the same nerve.

The reason for the great majority of the unilateral cases being right-sided has been ascribed to the majority of people being right handed, but I am not convinced of the correctness of this observation.

The predominance of neuralgia in the tenth thoracic to the first lumbar nerve is due to excessive spinal stresses in this region incident to the more flexible lumbar spine being attached to the relatively rigid thoracic spine. A similar frequency of nerve involvement occurs where the flexible cervical spine joins the rigid thoracic spine and causes nerve symptoms which are frequently mistaken for angina pectoris.

In previous papers I intentionally refrained from stressing muscular rigidity as a very infrequent symptom of intercostal neuralgia and, to avert the serious danger of inexperienced diagnosticians failing to recognize the presence of peritonitis, I trust future writers will refrain from unduly emphasizing the importance of abdominal rigidity.

In a paper on Acute Pseudo-Appendicitis, I explained at length that abdominal rigidity is a rare symptom in intercostal neuralgia and that it is almost invariably due to pneumonia or pleurisy at the base of the chest. As a rule the presence of involuntary abdominal rigidity, provided an acute pulmonary lesion and trauma to the chest wall are excluded, calls for operation even though the signs of parietal neuralgia are present. In the past thirty years I have seen only five cases of intense abdominal rigidity in pari-

ctal neuralgia due to causes other than basilar lesions or trauma of the chest.

In 1915 I published a paper on typhoid spine with a report on one hundred published cases and four personally observed cases. The great majority of these patients experienced severe or even excruciating pains radiating in one or more directions, as around one or both sides of the lower chest and abdomen, down one or both lower extremities or into the testes. These referred pains might persist from a few minutes to several hours at a time and then cease to recur after minutes or hours. Pains were aggravated by movements of the spine and were usually worse at night. Tenderness was present over the same areas as the pain radiations. Some of the cases including two of mine exhibited abdominal rigidity of an intensity which varied on different days or even at different hours of the same day. A few reported cases and the same two of mine displayed a curious rhythmical alternating contraction and relaxation of the abdominal muscles on one or both sides. These contractions in many but not all patients were synchronous with the pulse beat and in one reported case they were abolished by compression of the upper abdominal aorta. Individual contractions were mild at one period and violent at others. The rhythmical contractions occurred at intervals during which the referred pains might be either present or absent.

About a dozen years ago I removed an acutely inflamed gall bladder from a young woman whose wedding date had been set for the near future. When she left the hospital two weeks after operation she began having rhythmical painful contractions of her abdominal muscles quite analogous to the contractions seen in typhoid spine. The contractions occurred intermittently, were of irregular duration from minutes to hours. By forcible compression of the abdomen by flat hands pain was relieved but contractions persisted and were associated with rigidity and tenderness. I was the only outsider present at her wedding and I was there for the sole purpose of applying manual pressure to the abdomen in case of need. Recent roentgenograms of this patient reveal spinal arthritis and recently she has widespread superficial pain and tenderness.

Several years ago I was requested to do an emergency appendectomy on a pupil nurse in each of two attacks of influenza in which she had bilateral acute abdominal pain, tenderness and marked rigidity, but she also had tenderness over the chest wall and complained of terrific vertebral pain. A subsequent appendectomy disclosed a normal appendix and normal pelvic organs. Several months later she had grippe and experienced another similar abdominal attack including marked muscular rigidity.

Three years ago one of my laryngological colleagues did a tonsillectomy at my request on a young man who had been having clinical symptoms of arthritis of the lumbo-thoracic spine and sacro-iliac joints for two years. He had moderate pain and tenderness of spine with marked restriction of motion due to muscle spasm but without x-ray evidence of bone disease.

Following operation his entire abdomen was very painful, exceedingly tender and profoundly rigid,—fully as rigid as any case of perforative peritonitis I have ever seen. Vomiting after the ether anesthesia persisted for over twenty-four hours and he had moderate fever, tachycardia and leucocytosis secondary to the operation. The severity of his abdominal symptoms was entirely out of proportion to the mildness of his constitutional symptoms during the three-day period in which they persisted before they disappeared abruptly and completely. Fortunately, but not without considerable trepidation, operation was withheld. During the next several months abdominal pain, tenderness and rigidity frequently recurred in a very much milder form. One of the more acute attacks apparently was precipitated by an injection of Coley's fluid.

The severity of motor nerve irritation in the preceding five cases was a most unusual manifestation in intercostal neuralgia. A condition of mild motor irritability is seen in a small percentage of cases of intercostal neuralgia as evidenced by increase in the

hypogastric or epigastric reflex or by palpation resulting in slight spasm either of a whole muscle or more often of only a group of muscle bundles.

In considering the diagnosis of intercostal neuralgia the history of the case may be helpful particularly in the direction of exposing (1) a present or recent acute infection to account for an acute attack or an acute exacerbation or (2) a lesion capable of causing chronic neuralgia. The more frequent the acute attacks or the more prolonged and more nearly constant the abdominal pain and tenderness, the greater is the likelihood of the case being parietal neuralgia rather than an intra-abdominal, pelvic, or genito-urinary lesion. A history of abdominal pain too widespread to be accounted for by a lesion of any single viscus in the absence of a complicating peritonitis is strongly suggestive of neuralgia. When a physician refers a patient to me stating that he is unable to determine the source of pain as between two viscera situated at a moderate distance from each other as for instance, between appendix and gall bladder or between appendix and uterine adnexa, I find almost invariably that the trouble is due to parietal neuralgia.

A considerable percentage of patients volunteer the statement that the pain extends "from the abdomen to the spine" or "from the back to the abdomen." This valuable clue to the nature of their affection probably being a parietal neuralgia is commonly overlooked by the attending physician who concentrates his attention on the abdomen and ignores the spine which is the actual source of the patient's trouble. A few patients state that their pain and tenderness are superficial but the great majority wrongly believe they are deep seated,—i. e., inside of the abdomen and not in the abdominal wall.

Rigidity generally indicates an intra-abdominal inflammation. Absence of rigidity in the presence of fever, rapid pulse, leucocytosis and vomiting does not preclude an acute intra-abdominal inflammation, but it does suggest a parietal neuralgia. Rigidity rarely forms part of the parietal neuralgia syndrome and is met chiefly in basilar pleuro-pneumonia or trauma of the chest wall. If these two latter conditions are excluded then true abdominal rigidity should generally be regarded as a definite indication of intra-abdominal pathology requiring operation regardless of any associated parietal neuralgia.

The tenderness of intercostal neuralgia is more widespread than the spontaneous pain. In the cases coming to me the spontaneous pain is usually limited to the abdomen but its simultaneous presence in the female breast, at and near the lower angle of the scapula or over the precordium and the left arm are fairly frequent. Exceptionally the abdominal pain may be associated with pain in other parts of the body. Even when the spontaneous pain is confined to some small part of the abdomen tenderness is frequently found in the terminal nerve distribution over the entire abdomen, over the inguinal regions and inner and outer aspects of the thighs, over the buttocks and in the upper arms near the posterior axillary folds and less often throughout all four extremities. Tenderness exceptionally is exquisite, commonly is moderate and demonstrable by customary palpation but often is so mild that considerable force is necessary to detect its presence.

Intercostal neuralgia of the abdominal wall can be quickly and easily diagnosed by a few special tests that should be carried out at the bedside examination of every patient having abdominal pain or tenderness. Palpation over relaxed muscles fails to indicate the parietal location of the tenderness which is then wrongly ascribed to an intra-abdominal lesion.

To detect parietal tenderness I devised the test of having the patient hold his abdominal muscles as tense as possible during palpation. His tensed muscles protect the abdominal viscera from palpation pressure and any tenderness which is thus elicited must be parietal in location.

I had supposed this test was an original suggestion but in looking up the literature for this paper I found a recent article with earlier references by Franke in which he describes palpation of the abdomen while

the patient is in the act of rising from a lying to a sitting position. He utilizes the principle of palpation while the muscles are actively tensed, but the method is less satisfactory than having the patient voluntarily tense the abdominal muscles while lying in the supine position. Tension of the abdominal muscles may be secured in any one of three ways. Voluntary forcible elevation of the diaphragm or active contraction of the abdominal muscles tends to produce the scaphoid type of abdomen which permits the examiner's fingers to come in too close contact with the viscera. The best method of tensing the abdominal muscles is by having the patient make a straining effort downward with the diaphragm thereby ballooning out the abdominal muscles to their maximum capacity. With children or with adults who do not readily understand how to contract the diaphragm the same result can be obtained by having them keep their knees extended while they actively raise and hold their feet about six to twelve inches above the level of the bed.

Palpation tenderness that is present over relaxed muscles and entirely absent over tensed muscles is subparietal in location, being tenderness due to a lesion either of an abdominal viscus or of the lumbar vertebrae and sacro-iliac joints. Palpation tenderness which is found both when the abdominal muscles are tensed and when they are relaxed is located in the anterior parietes and is due to intercostal neuralgia except in rare instances of local trauma or inflammation of the parietal tissues.

The parietal tenderness of intercostal neuralgia occurs in three layers:—(1) skin and fat; (2) muscles; and (3) preperitoneal fat and peritoneum. Janowski, who found that 10 per cent of the patients in his general medical practice came to him solely because of intercostal neuralgia symptoms, tested his patients by lifting a fold of skin and fat away from the muscles with one hand and then pinched various parts of that fold between a thumb and finger of his other hand. His method is faulty in that he ignored the tenderness in the deeper layers of the parietes. In a very small percentage of cases of intercostal neuralgia, tenderness is absent in the skin and fat but present in the muscular layer of the parietes.

My own method of examination by palpation over tensed muscles is also imperfect in that it demonstrates only the combined tenderness in the upper two layers, i. e., in the skin, fat and muscles. Tensed muscles prevent elicitation of palpation tenderness located in the peritoneum, preperitoneal fat and deepest layer of muscles. Hence even when all the tenderness is parietal, greater tenderness is found over relaxed than over tensed muscles,—the difference in the degree of tenderness represents the tenderness of the peritoneum, preperitoneal fat and deepest muscles. There is always the possibility in any given case that some part of the tenderness which disappears when the muscles are tensed may be true intra-abdominal tenderness. The problem therefore remains for some one to devise an ideal test which will accurately differentiate the combined tenderness of all three parietal layers from tenderness due to intra-abdominal lesions.

In a recent laparotomy under local anesthesia this ideal test was made possible by finding that pinching of various viscera was painless, whereas compression of the entire thickness of the abdominal wall away from the anesthetized area between a finger on the peritoneum and a thumb on the skin demonstrated the total parietal tenderness and also aggravated the particular type of pain of which the patient complained. In two cases of parietal neuralgia I was able to compress the entire thickness of the abdominal wall after passing a finger through an umbilical hernia ring. Unfortunately neither of these two methods is applicable for routine examinations.

The parietal tenderness elicited by palpation over tensed muscles is due to hypersensitiveness of the nerves as shown by a variety of tests.

Pinching of a liberal fold of skin and fat usually demonstrates tenderness in them, although rarely they may be only normally sensitive in some cases in which tenderness is present in the muscle layers. Franke has

found that a fold picked up at a right angle to the course of the nerve is more sensitive than a fold parallel to the nerve. The pinch tenderness may be widespread or localized to any part of the abdomen depending upon the nerve or nerves which are involved. In severe neuralgia the lightest pinch causes great distress. In mild neuralgia the maximum pinching force is necessary to elicit the evidence of tenderness.

The best way for the novice to apply the pinching test after grasping a fold of skin and fat over the spontaneous pain area is to apply gradually increasing pressure until the patient manifests distress; then the examiner should register in his own brain the exact amount of force used; and pick up another fold of skin preferably at the corresponding area on the opposite side of the midline and reapply as great or even three or four times as great pressure when it will be found, if the neuralgia is not bilateral, that the second pinch does not produce nearly so much pain as the first pinch. If the neuralgia is bilateral in the abdomen some one quadrant is often found free from hypersensitiveness and it can be used as a control for the other three quadrants. If the entire abdomen is hypersensitive control can be made by pinching over the ulnar border of the forearm as the latter region is only rarely involved. It is very important for the examiner to pinch the fold of skin with increasing force until one of two results occurs,—either (1) the patient exhibits evidence of distress or (2) the examiner has exerted his maximum pinch without causing distress. If the examiner's pinching muscles are weak he needs to substitute or to add a twisting effect on the uplifted fold of skin and fat. With the average patient prompter and usually more reliable information is obtained by watching their facial expression than by asking them questions as to the amount of pain caused by varying degrees of pinching pressure. I give all these details because the great majority of clinicians have found it impossible to recognize parietal neuralgia from the descriptions of tests I have given in earlier papers and yet they readily master the tests when they are given personal demonstrations in a variety of cases. Almost invariably the cause of their failure is using insufficient force.

Pinching tenderness may be limited to the anterior abdominal wall but not infrequently especially in hyperacute cases it may extend from the scalp to the ankles and involve both upper extremities.

The tenderness thus far described has all been in the terminal distribution of the affected nerves. This tenderness may be encountered in routine examinations of patients with scoliosis, excessive lumbar lordosis or spinal arthritis who have never had any previous spontaneous pain but who are likely to develop it in the near future. This tenderness is also found in subsiding cases of acute toxic neuralgia for a variable length of time after complete disappearance of the spontaneous pain.

Tenderness in the trunks of the intercostal nerves is demonstrated by making upward pressure against the lower edge of the rib while moving the examining finger back and forth for a distance of about one and one-half inches in the interspace. This sliding movement is necessary as often the nerves are sensitive only at certain "points" and pressure over a limited area might miss the hypersensitive "point."

Localized tenderness encountered at or near the transverse vertebral processes may be due to an irritative lesion of the joint between them or may represent Valliex's apophyseal "tender point" of the nerve trunk.

The various tests thus far enumerated are all of great practical value in arriving at a correct diagnosis as to the location of the tenderness. Less clinical importance but some academic interest is attached to the finding of superficial skin tenderness by scratching or pricking with a pin, by stroking with a cotton wisp and by applying heat and cold over the region of pinch hyperesthesia. These tests for superficial hyperesthesia are the only ones commonly employed by the writers on radiculitis. The areas of hyperesthesia they find extend at a right angle from the spine and correspond to cord segments in distribution. The areas

I commonly find are elongated in the long axis of the body and usually do not extend to the spine. I have occasionally encountered perversions in skin temperature, secretion of sweat, in the pilo-motor reflex and in the vaso-motor reflex in neuralgic areas, but I have not made any special study of them.

I regret that the space limitations of this published paper do not permit mention of the individual intra-abdominal lesions which I described at all too great length in your annual meeting as being simulated by parietal neuralgia. Anyone interested in this phase of the subject may obtain that information from my earlier published papers.

In brief, parietal neuralgia may simulate any abdominal lesion which causes pain and tenderness and the special tests which have been outlined must be utilized in making the differential diagnosis.

The presence of parietal neuralgia in no way excludes the possibility of a co-existent intra-abdominal lesion. The diagnosis of intra-abdominal lesions is often difficult in the presence of overlying neuralgia and may require every possible diagnostic aid before a decision can be made.

Whenever parietal neuralgia is found a search should be made to discover the underlying cause,—usually an acute toxic focus in acute cases and a spinal column lesion in the chronic cases.

I also regret space forbidding my describing treatment in detail, but I expect shortly to publish a paper devoted entirely to this phase of intercostal neuralgia. Briefly, the treatment is directed toward overcoming the underlying toxic or vertebral cause.

The parietal pain and tenderness of intercostal neuralgia are not cured by laparotomy irrespective of the urgent need for removal of a visceral lesion on its own account.

BIBLIOGRAPHY

Austin, M. A.: Jour. Indiana State Med. Ass. 2; 482 (Nov. 15), 1909.

Baum, Prof.: Deutsche Zeitschrift für Chirurgie, Leipzig, 197; 74 (July), 1926.

Blanton, Wyndham B.: J. A. M. A. 85; 1811 (Dec. 5), 1925.

Brandt, Kr.: Norsk Magazin for Laegevideus, Kaben, 8:87 (Aug.), 1926.

Carnett, J. B.: "Typhoid Spine," Annals of Surgery, April, 1915, p. 457; "Intercostal Neuralgia," Surg. Gyn, & Obstet., May, 1926, p. 625; "Strain of Lumbar Spine," Annals of Surgery, April, 1927, p. 509; "Chronic Pseudo-Appendicitis," Amer. J. Med. Sc., Nov., 1927, p. 579; "Acute Pseudo-Appendicitis," Amer. J. Med. Sc., Dec, 1927, p. 833; "Pseudo-Cholecystitis," Annals of Surgery, Nov., 1927, p. 747; "The Simulation of Intra-Abdominal Lesions," Med. Jour. & Record, Jan. 16, 1929, p. 64. "Neuralgia," Penna. Med. Jour., Sept., 1929.

Carnett, J. B., and Boles, Russell S.: "Fallacies Concerning Chronic Appendicitis," J. A. M. A. 91; 1679 (Dec.), 1928.

Cottrell, John C.: Colorado Medicine, 26:303 (Sept.), 1929.

Chute, A. L.: Boston Med. & Surg. Jour. 151; 563 (Nov. 24), 1904.

Clinton Marshall: J. A. M. A. 83; 90 (July 12), 1924.

Dickson & O'Neal: Quoted by Vanderhoof.

Franke, Felix: Deutsche. Med. Wochenschrift, No. 21, p. 876, May 21, 1896.

Goldthwait, Joel E.: Proceedings of Inter-State Post Grad. Med. Ass'n. of North America, p. 282, Oct., 1926.

Gunther, Lewis: California & Western Medicine (awaiting publication).

Janowski, W.: Revue de Medécine, Paris, May, 1912.

Knappenberger, Geo. E.: Kansas City Southwest Clinical Society Monthly Bulletin, May, 1928.

Nathan, Philip Wm.: Amer. J. Med. Sc., Vol. 152, 1916.

Piersol, G. M.: Bockus, H. L., and Shay, H.: Amer. J. Med.. Sc., p. 84, Jan., 1928.

Pray, R. E.: Journal-Lancet, Nov. 15, 1927.

Ryle, J. A.: The Lancet (London), p. 895, May 1, 1926.

Small, James C.: Amer. J. Med. Sc., May, 1928.

Tennant, C. E.: Colorado Medicine, July, 1923.

Valliex, F. L. I.: "Traité des Neuralgies ou Affections Douloureuses des Nerfs", Paris, 1841.

Vanderhoof, Douglas: J. A. M. A., Vol. 74, June 19, 1920.

DISCUSSION

C. E. Tennant, Denver: Our genial guest has stated that I was responsible for precipitating this heresy on the society. I will admit the allegation. About eight or nine years ago I did so, but I am not responsible for the dose you have just received. I certainly want to thank the man who is responsible for bringing this before you again. I am satisfied it has driven home some things which had not yet been presented.

You know the medical profession is fettered with the burden of many traditions, and I think one of the strongest ties which holds us down is the old theory that tenderness over the abdominal cavity always means intra-abdominal pathology. This has been drilled into us from the very beginning.

It requires a big man who is both mentally and physically well equipped to break down these traditions, and today I wish to express my appreciation to our guest who has come all the way from Philadelphia to give us this new light. He has given us a practical demonstration of a group of tests which will enable us to make a better differentiation between intercostal neuralgia and intra-abdominal pathology.

Considerable objection to this subject being presented at our medical meetings has been voiced by our members and some have gone so far as to say that it is not a proper subject for discussion.

One of our good surgeons, who is present today, however, recently made the statement "that we must recognize its merit in order to save our faces." And this is true.

Why do the osteopaths, and other cults, receive credit for the cure of appendicitis without operation and yet know nothing of the diagnostic methods, nor pathology, which have been outlined here today. The answer is what they cure is not appendicitis but that which our guest has demonstrated to us today as intercostal neuralgia

G. H. Curfman, Salida: The profession of Colorado is greatly indebted to Dr. Carnett for describing a symptom complex seldom recognized, and one which accounts for a number of surgical mistakes. Recognition of the acute form, especially during the prevalence of acute respiratory affections should cause one to seek for other tender points than those in the abdominal area alone. Likewise, recognition of the chronic form should result in a search for faulty posture and for evidence of spinal osteo-arthritis.

A recent study was made in this state by Dr. J. J. Cottrell to determine the incidence of the radicular syndrome in cases of osteo-arthritis, and I am privileged to give a summary of his findings:

"Eighty unselected patients over forty years of age were studied to determine the incidence of osteo-arthritis of the spine, and the frequency of an associated radicular syndrome. Forty-four per cent showed evidence of hypertrophic osteoarthritis. Fifty-five and six-tenths years was the average age of the patients. The lumbar region was the most often involved. Throat cultures from the forty-four showing osteo-arthritis did not yield streptococcus cardio-arthritides in any instance. A focal infection was found in 56 per cent of all cases, and 68 per cent of cases showed osteo-arthritis. Twenty-five, 31 per cent, showed, by neurological examination, evidence of pressure on the spinal roots. In seventeen, 20 per cent, no symptoms were found attributable to arthritis. Eight, 10 per cent had the radicular syndrome in which the complaint was entirely due to this condition. Four of the eight had osteoarthritis, whereas four had none visible to the x-ray. Of the eight with the radicular syndrome, five had been operated without relief. In five, the radicular syndrome simulated visceral disease."

P. N. Hall, Denver: I want to speak for three or four minutes only, and to commend the speaker for the excellent presentation he has made. I do not agree, however, that there is any such fault with the operators in chronic appendicitis cases as is intimated. A lot of doctors do not use as much judgment as they should, and especially a lot who have followed the teachings of a brilliant teacher in Boston, and clinicians get into trouble by thinking that there is no such thing as chronic appendicitis. I have recently published a paper on why patients with chronic appendicitis do not get well, and it sets forth a good many reasons why they go on with the trouble. It is because they have not been taken care of afterwards. I recently checked over some of the cases that I had—there were six thousand cases, and that is not an estimate, because here is a sworn affidavit, and the records are in the safe—six thousand cases diagnosed as appendicitis. There were probably as many more where the diagnosis was put down as some other condition, such as gastric ulcer, where the appendix was secondary. We find there are a great number of them, and I must say that the most satisfied group of patients I know of are the patients coming in with trouble down in the lower right abdomen. One of the reasons why I have not added to my activities in the medical profession in recent years, and why I regard myself as an old fogy, and why I do not play golf, is that I have not had time. If you will keep these people with chronic appendicitis off my neck, I will agree to play golf. These patients go around and see one doctor after another, and finally they finish up with an acid stomach or an old-fashioned touch of malaria; but they do not get anywhere, because, as Abe Lincoln said, "Nothing is ever settled until it is settled right." They have to see someone who knows a chronic appendix when he sees it. Those patients should be taken by the nape of the neck and told where to get off, and told what to do.

Down in central Nebraska, there is an old Irish section boss. Twenty years ago he sent one of his family to Dr. Freeman and me, saying that there was something wrong with the man's digestion. We found a bad appendix. Dr. Freeman removed the appendix and the patient went home. A little later the patient sent one of his henchmen to me saying that "I think it is the same thing." He had his appendix out and got well. During an interval of fifteen or twenty years he has sent perhaps a dozen patients, and he generally tells me what he thinks the trouble is, and he is generally right; and I think he knows a sight more about chronic appendicitis, than some of the doctors who go around proclaiming that there is no such thing. If he had half of the medical education that has been bestowed upon some of us, he would have been a mighty sight better doctor than some of us.

H. G. Garwood, Denver: I have enjoyed Dr. Carnett's paper very much, but as Dr. Tennant has said, "I am still in the bullrushes." I cannot entirely agree with some of the things he has said, however. I am unconvinced, perhaps, because of my limitations. But let us go back a little bit, say about twelve years, and to the time when the draft was on, when we saw any number of men coming into the room with poor posture. How many men wtih poor posture had intercostal neuralgia? There were a lot of those fellows who came down there with sunken chests, and pot bellies and poor postures, I don't believe there was 1 per cent of those men—I have no records to submit to you, or any histories to give to you—but I don't believe there was a man in that draft that complained of intercostal neuralgia? There is another thing, and I don't know that I quote the essayist correctly, but I think he told us that the intercostal neuralgias that he has are mostly on the right side. Why are they mostly on the right side? Another thing, and I think I paid particular attention to what he said, was that the pain was more or less pronounced at night. I may be wrong about that. If the pain is more pronounced at night, and these patients were asleep, what about the intercostal neuralgia if the posture had anything to do with it? There is one other point brought out by the essayist, and which was emphasized by Dr. Hall, in which he said that 95.4 per cent of tht chronic appendix cases were caused by intercostal neuralgia. I cannot agree with him.

Leonard Freeman, Denver: I did not intend to discuss this paper, but I want to say a few words. I am very much indebted to Dr. Carnett for bringing before us this timely and important subject. It makes us think, as Dr. Tennant has said. But I wonder if he has not over-emphasized an important subject; whether he has not over-emphasized a symptom rather than the initial cause? As Dr. Garwood says, he has raised a pertinent question, as to why these neuralgias occur on the right side, and we seldom find them on the left side. As far as I know, Dr. Carnett has not

answered that question. I should be glad if he did. There is no doubt at all that neuralgias are very frequent things; but I do not think that Dr. Carnett admits, as much as he should admit, that these neuralgias frequently come from disturbances within the abdomen. Now, these disturbnces occur, and they have been blamed on various things. For instance, Wilms of Germany has written on the subject, saying that these neuralgias are due to a loose cecum, and he has had most wonderful recoveries by tying up the cecum. We all admit that pains occur after operations for chronic appendicitis—in as many as 40 and 50 per cent of the cases, it is sometimes estimated. Dr. Ray Smith of Los Angeles says that these pains are due to the cecum being too tight, and he loosens it and gets most wonderful results, just as good results as Dr. Carnett does; and Leitz, of Danzig, has recently written a book in which he says the pains are due to spasm of the lower ileum, and he gets beautiful results by diet and mental treatment, and so it goes, each one gets his results; but results apparently do not mean much. One of the points to be emphasized is that these "neuralgias" come in people with noticeable nervous symptoms, and sometimes they are produced by one thing, and sometimes by another. I have no doubt often enough they are due to troubles in the spine. We are all on the lookout for that, and every good diagnostician considers that whenever he sees a case of chronic appendicitis. But that is not the only thing. There are a whole lot of other things. There is mesenteric lymphadenitis, the ovary, the kidney, various kinds and membranes, etc., etc. Of course, the neuralgia often is there, but we must not make the mistake of always making it the primary cause, or overemphasizing it too strongly.

R. H. Finney, Pueblo: After anyone has made an intense study on any subject, it is well worth considering the results. None of us have a right to not believe in anything that we have not studied thoroughly. But there is one note that I would sound, and Dr. Hall has practically sounded it for me. Colorado has the highest, or one of the highest, appendicitis mortality rate in the United States. Goodness knows, anything that will make it higher than what we already have, is to be feared. It is very well for this audience to hesitate about being subjected to criticism, but we should face the situation squarely, because our cults and some of our doctor friends in our particular home towns, doctors who do not belong to the Society, who never read a book, who never come to the Society meetings, fill our hospitals with ruptured appendix cases,—Lord help us if they get hold of this subject, or hear Dr. Carnett this morning. I do not mean to say that he has not given us a great deal, because he certainly has. But for the ignorant, who never studies and never reads, Lord be with us with more ruptured appendices and more trouble.

Edward Delehanty, Denver: We are all indebted to Dr. Carnett for his rather startling paper so ably presented. The surgeons and internes have already discussed it and as neuralgia plays so prominent a part in the thesis, a neurological discussion would not be out of place.

In the last section of the doctor's paper he stated that intercostal neuralgia was the cause of making abdominal complaints for which useless operations were performed. He goes so far as to say that 95 per cent of chronic appendicitis and 50 per cent of so-called acute appendicitis are due to intercostal neuralgia rather than to local pathology. Coming from such an authority and a surgeon it cannot but have a deterring effect in preventing useless abdominal operations.

Some years ago a neurologist read a paper before the County Medical Society, calling attention to the fact that a great many operations were performed on the abdomen which should not have been performed, and that they were worse than useless. Of course, he was taken very severely to task for it, and was regarded as more or less presumptuous. The effect of that paper was not such as this paper by Dr. Carnett, as he is a leading surgeon of the country. I think it will call the attention of the physicians and surgeons, in these obscure abdominal conditions, to the fact that they should "Stop, Look and Listen" before they enter the abdominal cavity. The doctor said it was wrongly ascribed to neurotic conditions. I wish to take issue with him for in my experience the neurosis plays a prominent part in abdominal distress, far more than the neuralgia.

As I said Dr. Carnett's hypothesis is a startling one and whether it will stand the test of time remains to be seen. However, it will have the effect of preventing useless operations.

W. B. Yegge, Denver: In connection with this most extremely interesting paper, I wish briefly to outline a case: A female, about thirty years of age, two years ago came to me suffering with pain in the left side of the chest. X-rays showed arthritic changes in the spine. She was also a typical hypo-thyroid case. About two months ago she came back to me complaining of pain in the lower right abdomen, extending from the back to the front, and also down the thigh, with a diagnosis of cyst of the ovary. Along about this time I had read Dr. Carnett's work, and the case having had four major operations, I felt that she should be carefully studied before another operation. She responded to all of Dr. Carnett's tests for intercostal neuralgia. However, being a disciple of Dr. Hall's, I was still unwilling to make a diagnosis of intercostal neuralgia until I could rule out definite pathology. I sent her to a urologist who found a negative right kidney, and I concluded from her symptoms, that her trouble was due to neuralgia, and advised against operation, believing that the ovary was only a minor factor in the case. However, she did not take my advice, and was operated, and still, after the cyst operation, she has her old symptoms present.

The one great objection to this subject is that there are too many pathological conditions that do not give any definite signs, as, for instance, chronic retrocecal appendicitis. I have seen many of these cases, that after operation, when the appendix is removed, the symptoms disappear. However, if the patient is carefully diagnosed according to the method outlined, without becoming too radical, in either direction; I believe a definite conclusion can be reached, and your patient operated when pathology is present; and saved from a useless operation when a neuralgia is present.

O. S. Gilbert, Boulder: It takes a man of unusual courage, occupying the position that Dr. Carnett does, to present such a paper. I think we will all grant, as Dr. Freeman has said, that the human tendency is to over-emphasize a subject in which we are so deeply interested as he is in this; but it must undoubtedly account for a good many of the cases we all have upon our records in which the patient has had an operation for chronic appendix, and still has the pain. We see them right along. When I speak a bit skeptically of chronic appendicitis, please do not think that I am including recurrent attacks; for they are just as clear as can be. I had the good fortune the other day to hear Dr. Carnett at the clinic at the University Hospital. I went home and examined a patient, and applied the tests.

They were negative. The man had badly infected tonsils. I believe he has a real chronic appendix, and I advised him to get it out. I had the good fortune to see Professor Head attempt a demonstration of his visceral reflex a number of years ago, and the dear old gentleman was humiliated that it did not work out that day; and I have been forced somewhat to the conclusion that this visceral reflex is not so common.

F. N. Cochems, Salida: I have seen a number of cases of appendicitis in the last few years which were operated for appendicitis that really had very few definite symptoms. Some of the gentlemen have said that many of these patients went away with the same symptoms they started with. My idea is that they never had appendicitis and that after they were operated they had symptoms that they never had before.

I believe most cases of chronic appendicitis, so-called, that are operated in the United States today are not cases of appendicitis at all. I do not think the patients are operated because they have symptoms simulating intercostal neuralgia, but they are operated because they have some symptoms referable to the right iliac fossa, which would not lead the clever diagnostician to a diagnosis of appendicitis. If the intercostal neuralgia were the cause of these errors we should have more symptoms on the left side of the abdomen than on the right side.

The females are more unfortunate than the males for when the appendix is removed, many of these operators are bound to find a cyst in the ovary-right because it is nearer the appendix. Therefore, it is my belief that many normal ovaries are removed.

I believe with Dr. Carnett that there are too many appendices and gall-bladders removed without pathology. I believe that 60 per cent of the abdominal operations done in America today are unnecessary, and perhaps that percentage should be revised upward.

Dr. Carnett (closing): I am very glad you have been frank in expressing your antagonistic views. Today the time is a little short to attempt to cover all the points that have been raised. Dr. Garwood speaks of patients with bad posture without symptoms. I think that is probably best explained in the words of Cochrane in his book on Orthopedic Surgery. He says there are any number of patients with heart disease without subjective symptoms. There comes a time when the heart patient develops decompensation and he then gets his swollen feet and short breath. There is considerable similarity between the bad heart and bad posture. The patient with poor posture at first is free from subjective symptoms but after a time he is apt to get decompensation with onset of parietal pain. The visceroptotic patient can go on with fairly normal digestion for years and years, and then some thing happens, and he has his symptoms; and it is the same way with this pain. I do not claim, and never have claimed, that all poor posture cases have trouble, and have intercostal neuralgia.

Why pain is more common on the right side in the abdomen, I do not know. I quite agree with the speaker, Dr. Cochems, who states that in the chest intercostal neuralgia is found more frequently in the upper left. Statistics show it is more common in the upper left than in the right chest, but it is not confined to the right side of the abdomen. The majority of the abdominal cases which I demonstrated at the University and Greeley hospitals were bi-lateral and almost as bad on the left as on the right. There are abdominal cases in which the pain is confined absolutely to the left. I do not know the reason for it. I might ask the speaker, Dr. Cochems, why it is more common in the left chest. Perhaps he can tell us. The only explanation that has been offered by anybody that appeals to me but which does not entirely satisfy is that most people being right handed, the abdominal pain occurs more commonly on the right side. Scoliosis is common and the usual curvature causes abdominal pain on the right side, and if a compensatory scoliosis occurs in the opposite direction it will cause chest pain on the left side.

I believe that intercostal neuralgia may occur with or without gallstones and with or without appendicitis and I believe intercostal neuralgia of the chest may be present with or without lesions of the heart or aorta and that the great bulk of cases of pain in the left chest are not due to angina pectoris. That is merely a surgical opinion, but you may take it if you wish. Parietal pains at the right costal margin are not cured by removing the gall bladder. The parietal pains persist irrespective of how badly that gall bladder needed to come out on its own account because if the patients have intercostal neuralgia beforehand, they will have it afterwards. I was grievously disappointed when I found that the taking out of infected gall bladders did not cure intercostal neuralgia of the biliary region as I had fully expected that relief of toxemia would cause cessation of pain. I suspect that if it were feasible to remove the heart and aorta we would find that the chest pains would still continue in the great majority of cases labeled angina pectoris. I tried for years to utilize the Head and McKenzie theory of the viscero-sensory reflex but it cannot be made to work out in practice and I am convinced the theory is entirely erroneous.

Abdominal pain coming on in the night is due to change of posture in a sensitive spine. Some people can lie on their right side and cannot lie on their left, or vice versa. If they have had an operation of any kind in the past, the pain is commonly blamed on adhesions. We surgeons know that adhesions commonly are not found at operation. Years ago I found that operations for adhesions were frequently useless. Now I do not operate for adhesions unless the roentgenologist can demonstrate some form of obstruction of the gastro-intestinal tract. The usual cause of symptoms ascribed to adhesions is intercostal neuralgia of the abdominal wall.

A minor percentage of patients have their most severe pain when they first get out of bed and require an hour or two to limber up. It is astonishing how often these people, who are worse off in the morning, are benefited by a change to a different mattress and bed springs.

Dr. Love, I think, misunderstood me when he quoted me as saying there is no tenderness in acute appendicitis. There is when the muscles are relaxed, but by tightening the muscles you fail to get it. In acute perforative peritonitis the abdominal muscles are described as being as rigid as it is possible for them to be; but they are not. Tenderness is usually marked in spite of the involuntary rigidity but if the patient adds voluntary rigidity to the involuntary rigidity then in the great majority of cases the tenderness disappears. I think rigidity of the abdominal muscles is far less common than is generally believed. I frequently fail to find it in cases referred by physicians who state rigidity is present. Often a distended cecum is mistaken for

rigidity. When present I regard rigidity, irrespective of the presence of parietal neuralgia, as a most important symptom pointing to immediate operation provided basilar pneumonia is excluded. Absence of rigidity however does not mean that operation necessarily should be withheld as gangrenous appendicitis for instance may occur in the absence of rigidity.

Dr. Freeman referred to loosening up the cecum. Coffey's book on Enteroptosis gives a very good exposition of that subject. Coffey quotes two English surgeons who operated in the same class of cases. One surgeon loosens up everything around the cecum, and he cures all of his patients. The other surgeon operating on exactly the same class of cases, sews up the cecum, tightens it up in every direction, and cures all his cases. But the records of their cases report attacks recurring after operation. Their views are interesting but far from conclusive. The few patients I have had an opportunity to examine after excision of the ascending, transverse and descending colon presented the symptoms of parietal neuralgia. In them the pain and tenderness could not be in the cecum, in the appendix, nor in the ascending colon.

I realize that an imperfect knowledge of acute parietal neuralgia may result in delayed operation and increased mortality in some cases of acute appendicitis. Imperfect knowledge concerning infections of the Fallopian tubes may cause similar operative delay and death in acute appendicitis but that is no reason why both parietal neuralgia and pus tubes should not be considered in the diagnosis of any acute abdominal condition. Failure to recognize them as the cause of symptoms simulating acute appendicitis results in needless operative mortalities. I hope the mortality from appendectomy for chronic appendicitis will be wiped out by recognition of the fact that the symptoms ascribed to chronic appendicitis are usually due to chronic parietal neuralgia. Statistics from representative hospitals of the North Central States show a mortality of 1.6 per cent for operations for chronic appendicitis. The prevention of those deaths will more than offset any increased mortality in acute appendicitis due to confusion with acute parietal neuralgia.

I have abandoned operations for chronic appendicitis except in the rare cases in which x-ray study reveals more or less intestinal obstruction and then the operation is primarily on the adhesions with incidental appendectomy. No one has described a symptom complex for chronic appendicitis that cannot be easily found in dozens of patients from whom the appendix has been removed.

In reply to the inquiry as to parietal neuralgia being found most frequently in patients with chronic appendicitis I merely wish to state that the symptoms of pain and tenderness are due to parietal neuralgia and not to appendix. Nearly all of the cases of neuralgia I demonstrated at the University and Greeley hospitals had had their appendices removed without alteration of their preoperative symptoms. In them as in a host of similar cases it was parietal neuralgia which gave symptoms wrongly ascribed to chronic appendicitis.

Some of you think I have gone astray on this subject. Back East my antagonists state that perhaps 5 per cent of what I say may be true. If only 5 per cent is true it is still worth while for you to give it serious consideration. There is a certain knack in applying the tests I describe which I find the great majority of the readers of my papers fail to acquire. I regret that I cannot have each of you individually apply the tests under my direction. If you cannot find these cases in your practice it will be due to your not applying the tests correctly. In that event I would suggest your seeking instruction from some one of your medical friends who is able to find them because of a better knowledge of the tests. If the very minor percentage of your colleagues who have learned the tests disseminate their knowledge many of you, who are very skeptical today, will have a very different view five years hence.

TICK-BORNE INFECTIONS IN COLORADO†

II. A Survey of the Occurrence of Infections Transmitted by the Wood Tick

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DENVER

The purpose of this survey has been to determine the prevalence and distribution of Rocky Mountain spotted fever and other tick-borne infections in Colorado and to investigate the differential features of these diseases.

The results submitted are based upon the replies to a questionnaire sent to 1,800 practicing physicians in Colorado, upon the records of the Bureau of Vital Statistics, and upon personal observations and study of cases during the tick seasons of 1922, 1923, 1927, 1928 and 1929.*

The questionnaire assumes that Colorado tick-borne infections may be classified into five groups, as follows: (1) Typical Rocky Mountain spotted fever, (2) "Colorado Tick fever", (3) Local infection, (4) Tularemia, and (5) Tick paralysis. Personal observations on unusual symptoms and on methods of treatment were solicited. The data thus obtained are purely clinical and the personal

†From the Department of Pathology, University of Colorado School of Medicine. Read before the meeting of the American Medical Association at Portland, July, 1929.

*This work, begun in 1922, was interrupted during the years 1924, 1925 and 1926 owing to unavoidable circumstances.

equation must be taken into consideration in the estimation of such information.

Nearly 550 replies to the questionnaire were received. From these letters and the other available data, 172 cases of typical Rocky Mountain spotted fever were collected with 45 deaths. Eight additional cases acquired the infection either in Wyoming or Montana. While this cannot be a complete record, it is quite representative of all sections of the state and it shows that the disease is fairly common in Colorado, and serious because of the mortality rate of 26.27 per cent.*

is more commonly recognized and reported than formerly. We note no definite cyclic increase or decrease in the infection, as has been described by other investigators. Three cases were seen in 1885 by Dr. M. H. Sears in Lake County. In a personal communication he describes the illness of these patients and leaves no doubt as to the correctness of the diagnosis. He states that the miners and woodsmen at that time recognized this as a wood tick infection and that other cases were common in that region. These are of historical interest, and they bring out the

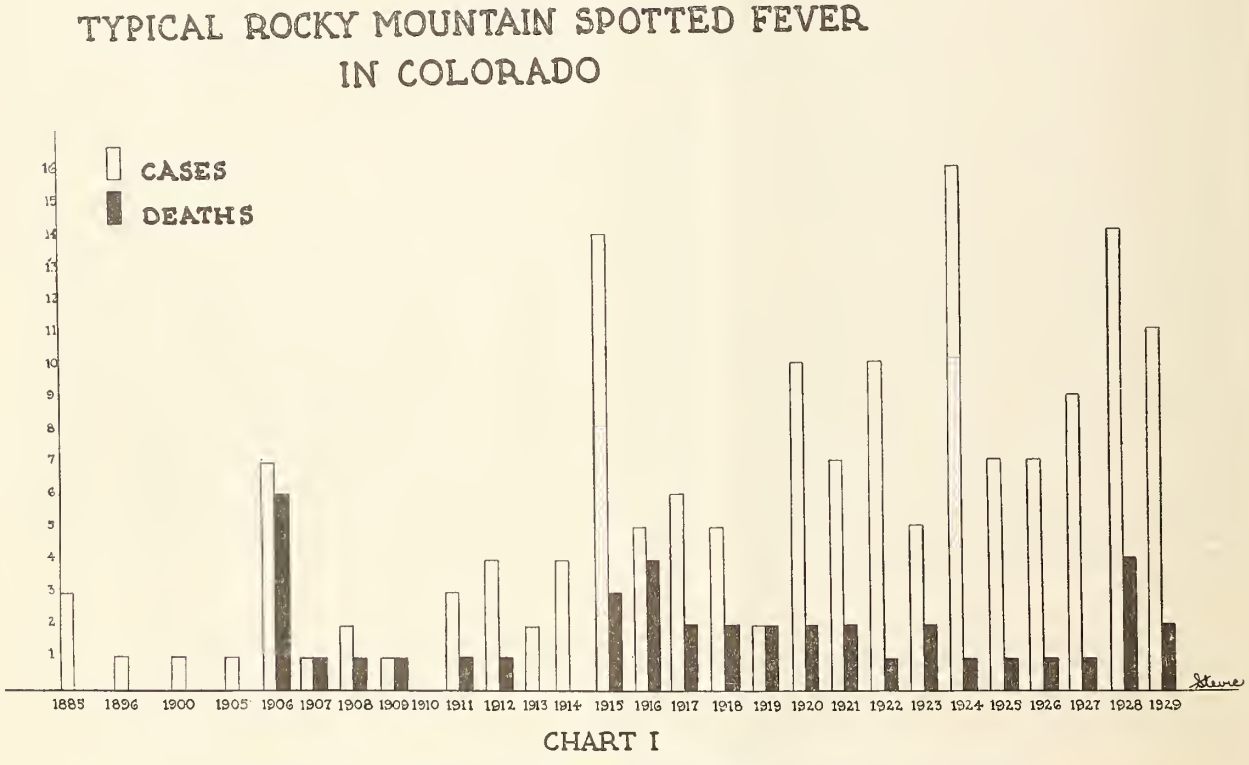


CHART I

Chart No. I. Typical Rocky Mountain Spotted Fever in Colorado

Chart No. I shows graphically by years the distribution of 158 cases and 45 deaths. In fourteen cases not listed in this chart the exact year could not be determined. The number of deaths is remarkably constant over a period of 23 years. There is some increase in the morbidity during the past nine years; however, this may be only apparent, and due to the fact that in recent years the disease

fact that the infection was prevalent over a wide area many years ago, and that it is not recently being imported with sheep and cattle and elk from other states, as frequently stated.

Colorado may be roughly divided by a north and south line through Denver as the center. West of this line are the mountains, and east are the plains in which wood ticks have not been described. Any cases occurring in the plains regions presumably have acquired the infectious tick either in the mountains of Colorado or in some adjoining state. The large number of cases reported in

*Since compiling the statistics here reported, I have received notice of three additional deaths during the present season, and in a letter from Dr. R. R. Parker of the Spotted Fever Laboratory in Hamilton, Montana, are listed the records of thirty-six additional cases with one death, thus making a total of 211 cases with 49 deaths.

Denver practically all acquired the infection elsewhere. However, this spring one patient was seen in Denver who had not been away from home, and the infecting tick must have been carried into the city.

The northwestern section of the state is most heavily involved, and the following counties report the largest number of cases: Moffat 27, Garfield 15, Grand 15, Boulder 12, and Larimer 12. No such distinctly outlined areas of infection as the Bitter Root Valley in Montana are known in this state. According to our figures the death rate of Rocky Mountain spotted fever varies from zero to one hundred per cent in different counties; however, a very intense local survey of each district would have to be made before accepting such an extreme variation in virulence.

The diagnosis of typical Rocky Mountain spotted fever is, as a rule, not difficult to make. However, this does not imply that the statistics here presented are above criticism. Two cases of Rocky Mountain spotted fever which I saw personally were diagnosed as measles by the attending physicians. Recently I saw a man in consultation in whom a profuse rash could not be differentiated from that of spotted fever. However, the absence of high fever and other severe constitutional symptoms excluded this diagnosis. The eruption was probably produced by a severe anaphylactic reaction. Cerebrospinal meningitis and meningococcus septicemia occasionally produce a clinical picture much like that of Rocky Mountain spotted fever, and some of the older reported cases were perhaps confused with these diseases. While typhus fever has not been described in Colorado it lies within the range of possibility that the Mexican form of this disease may have occurred among the migrant Mexican population of this state.

Chart No. III briefly tabulates some observations in eight clinically typical cases of Rocky Mountain spotted fever in Colorado.

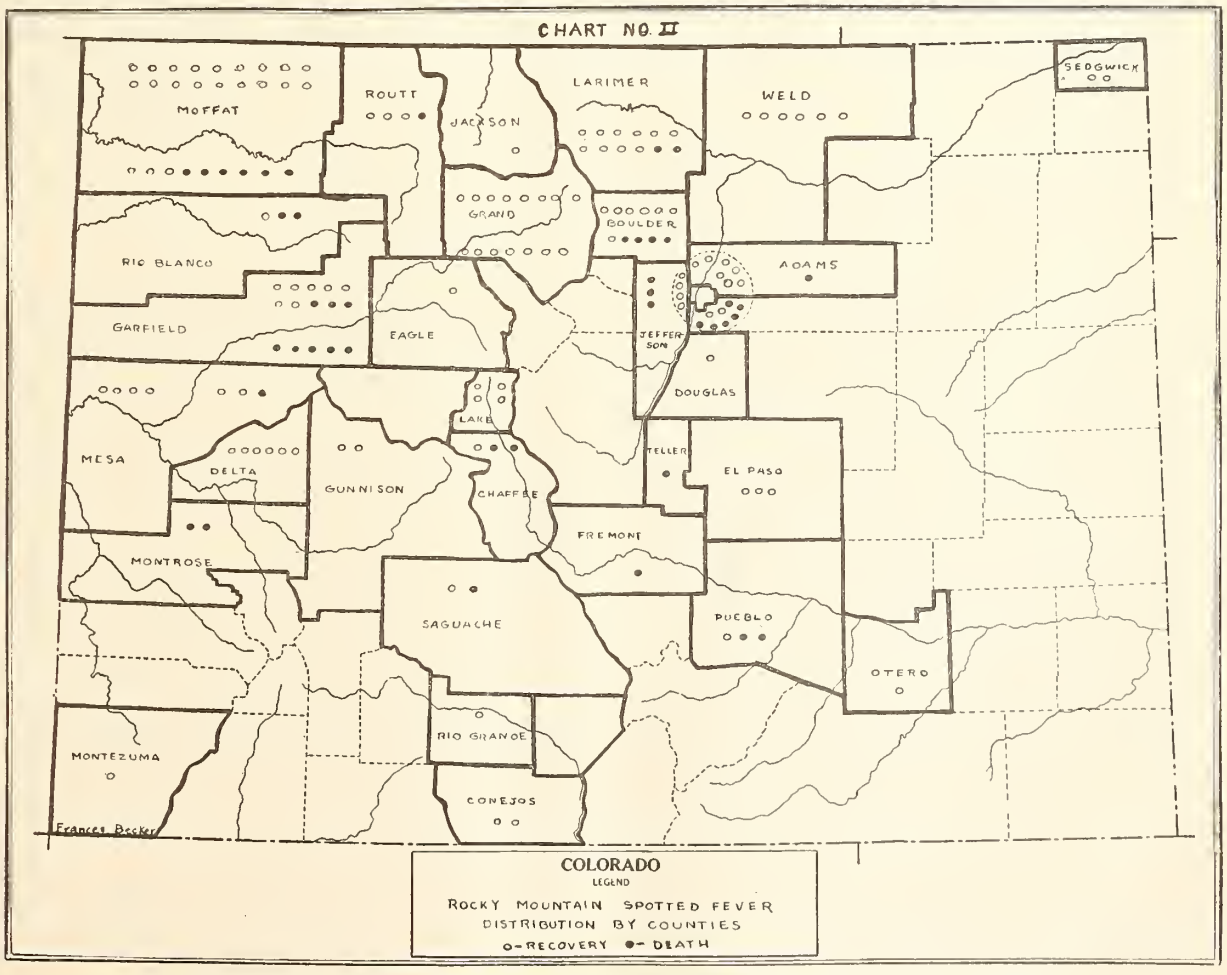


Chart No. II. Rocky Mountain Spotted Fever Distributed by Counties

CHART NO. III. OBSERVATIONS IN CASES OF TYPICAL ROCKY MOUNTAIN SPOTTED FEVER.

No.	Patient	Date	County	Guinea Pig Inoculatione	Guinea Pig Tiseue Examination	Blood Gount	Weil-Felix Reaction	Tick Hietory	Clinical History
*1	Boy Age 10	April 1922	Boulder	4/14 G.P. Intrap. Clinical history typical. 4/26 2 G.P. Intrap. with 5 cc. citrated blood. Clim. hist. typical.	No ricketteia. Grose leeions typical. Ricketteia (?) Grose leeions typical.	—	—	(?) Boy wae in Wyoming juet before illneee.	Severe illness. Typical rash. Atypical gastro-intestinal eymptome. Recovered.
*2	B.H. Age 24	May 1922	Chaffee	5/5 4 C.P. Intrap. Clinical history atypical. Peritonitis.	Grose leeione typical, with peritonitie.	—	—	Tick acquired near Salida.	Typical raeh. Severe illness. Recovered.
3	Boy Age 8	June 1926	Denver	—	—	WBC 11,000 L.Monos. 11%	—	Tick acquired in Wyoming.	Typical. Diagnosed as meaelee by attending phyeician. Recovered.
4	C.Y. Age About 35	May 1928	El Paso	5/10 (7th day of rash) 2 C.P. No symptoms developed.	—	5/24 Hgb. 75% WBC 5,200 RBC 4,200,000 Polye. 70% Lymph. 30%	** 11th day Poeitive	Tick acquired at foot of Pike's Peak	Typical couree. Recovered.
5	I.B	May 1928	Denver	—	—	—	** 6th day Negative.	(?)	Died.
6	R.J. Age 23	May 1929	Boulder	—	—	May 1 Hgb. 86% RBC 4,590,000 WBC 7,550 Polys. 82% Lymph. 9% L.Monos. 3% Eos. 3% (Neutrophilic (Myelocytes 2%	Poeitive in high dilutione.	Tick acquired near Boulder	Typical raeh. Ssvere couree of illneee. Recovered.
7	J.B. Age 58	May-June 1929	Boulder	17th day of illness. 1 C.P. Fever mild in G.P. Disd 7th day.	No rickettsia seen. Peritonitis at site of inoculation.	—	17th dsy. Poeitive in low dilutione.	Tick acquired Boulder.	Diagnoeed ae meseles by attending phyeician. Severe couree of illneee. Died at end of 4th week from edema of glottis.
8	Mrs. S. Age 72	June 1929	Denver	—	—	Hgb. 45% RBC 2,400,000 WBC 13,000 Polys. 79% Lymph. 17% L.Monos. 4%	3rd week. Positive in high dilu-	Tick acquired in Denver.	Very eevere course of illneee. Markedly developed raeh. Recovered.

* Previously reported, The Jour. of Inf. Dis., Vol. 39, No. 1, July, 1926, pp. 81-88.
** Agglutination by R. Mt. Spotted Fever Laboratory, Hamilton, Montana.

Chart No. III. Observations in Cases of Typical Rocky Mountain Spotted Fever

Guinea pigs were inoculated intraperitoneally with whole or citrated blood from four of these patients. In one instance no reaction resulted, in another a mild atypical disease was produced and in the other two symptoms typical of Rocky Mountain spotted fever in guinea pigs were observed. These inconstant results may be explained by the fact that some of the inoculations were made late during the course of the disease.

In the successfully inoculated guinea pigs typical lesions of the genitalia were produced showing the endarteritis characteristic of this disease. Rickettsia were not satisfactorily demonstrated. We have not found the technique for the demonstration of these organisms very difficult, but they have been very inconstantly present even in known infected material. This may depend upon the stage of the disease, the development of the lesions, and upon the pleomorphic character of rickettsia. Wolbach[1] has described three distinct morphological forms and Parker[2] believes that the virus may occur in a form which cannot be demonstrated by any now known method.

The blood was dark and viscid, and clotted very rapidly. The white count varied between 5,200 and 13,000, large mononuclear cells between three and eleven per cent. The hemoglobin and red cells were markedly reduced in the later stages of the disease. These observations are in accord with the usual blood findings.

The Weil-Felix agglutination reaction was positive with the serum of four out of five patients listed in this chart, in whom this test was made. In the one negative reaction

the blood was taken too early during the course of the disease.

Dermacentor andersoni Stiles is the only tick we have seen attached to man in Colorado. Several physicians expressed the opinion that spotted fever is transmitted by a rare tick species which might account for the sporadic occurrence of this disease. This is not correct, but infection in man is dependent upon the presence of the virus in a virulent form in the common wood tick, *D. andersoni*. The percentage of infected ticks varies in different regions. In the Boulder area we have proved the presence of the virus in ticks by animal experimentation (Becker)[3], but with this exception, no effort has been made to determine the occurrence of infected ticks in any locality in Colorado.

The clinical picture of typical Rocky Mountain spotted fever in Colorado in general agrees with the accepted description of this disease. Several patients whom I saw personally developed unusually severe gastrointestinal symptoms, such as vomiting and diarrhea with bloody stools. In about half of the returned questionnaires diarrhea is given as a symptom, instead of constipation which is the rule in other localities. In several replies residual paralyses were recorded.

In addition to the typical Rocky Mountain spotted fever there occur every year many atypical infections following tick bites, with characteristic constitutional symptoms, but without a skin rash, locally known as "Colorado tick fever."

Chart No. IV tabulates the observations in twelve atypical cases in all of whom the symptoms were considered due to the tick bite except in No. 9. In the latter there was a history of onset with severe sore throat, which could account for the clinical picture. The tick bites were considered to be a coincidence. In the other eleven there was a history of tick bite several days before onset of an illness with the following symptoms: A period of lassitude followed by a slight chill and a rise in temperature, headache, photophobia, generalized muscle and joint pains and nausea with occasionally some vomiting. A skin eruption did not develop, and all the patients recovered in a few days.

Eight animal inoculations were made either with blood from the patients or with an emulsion of the viscera of the attached ticks. A mild reaction developed in only two inoculated animals. Autopsy did not show any genital inflammation. In the guinea pigs inoculated with the tick emulsion there was a moderate hemorrhagic inflammation at the site of the injection in the abdominal wall. Rickettsia were not demonstrated either in the animal tissues or in tick sections. In No. 10 a rabbit was inoculated intraperitoneally with 5 c.c. of whole blood from the patient. The animal did not develop any symptoms of disease and three weeks later did not show any immunity against inoculation with a known virus of Rocky Mountain spotted fever.

The results of the animal inoculations are too indefinite for valid conclusions. One could assume that this symptom complex is a distinct infection or just as properly that it is an attenuated spotted fever. The solution seems to lie in numerous properly controlled animal inoculations and subsequent immune tests with the spotted fever virus.

Two white blood counts varied within a wide range as in typical Rocky Mountain spotted fever. No definite relative mononucleosis was noted. In No. 6 a glucose broth culture was made in order to rule out typhoid fever. The culture remained sterile.

Three positive Weil-Felix reactions would suggest a rickettsial nature of this infection, but this test does not specifically identify this syndrome as Rocky Mountain spotted fever, since it is also positive in some other rickettsial infections.

The Weil-Felix reaction, until recently, was thought to be negative in Rocky Mountain spotted fever, but in January of this year Kerlee and Spencer[4] published a preliminary report of positive results in this disease. This test is simple and as practical as the Widal test in typhoid fever, and it should be carried out in all obscure infections following tick bites.

In order to emphasize the importance of this procedure we have summarized in Chart No. V the reactions observed in several Colorado cases of both typical Rocky Mountain

CHART NO.IV OBSERVATIONS IN CASES OF ATYPICAL TICK INFECTION

No.	Patient	Date	County	Animal Inoculation	Animal Tissue Examination	Blood Examination	Weil-Felix Reaction	Tick Examination	Case History
*1	Adult female (Case 1)	April 1922	Boulder	1♂G.P. No fever	—	—	—	No rickettsia demonstrated.	Tick acquired near Boulder. Mild fever and malaise. No rash. Recovered.
*2	Boy (Case 2)	April 1922	Boulder	1♂G.P. No symptoms developed.	—	—	—	—	Tick acquired near Boulder. High fever. Generalized aching. No rash. Recovered.
*3	Adult male (Case 5)	Spring 1923	Boulder	1♂G.P. No symptoms developed.	—	—	—	—	Tick acquired near Boulder. High fever. Generalized aching. No rash. Recovered.
4	Adult female	Spring 1927	Denver	1♂G.P. No symptoms developed.	—	—	—	—	Tick acquired near Denver. High, persistent fever. Generalized aching, photophobia. No rash. Recovered.
5	Adult male	Spring 1927	Denver	1♂G.P. No symptoms developed.	—	—	—	—	Tick acquired near Denver. High fever. Generalized aching. No rash. Recovered.
6	C.C. Boy age 8	May 1928	Denver	—	—	WBC 2,200 Polys. 46% Lymphs. 50% L.Monos. 4% Glucose broth culture sterile	** 6th day positive in low dilutions.	—	Tick acquired in Gilpin Co. Severe illness, high fever, chilliness, photophobia. No rash. Recovered.
7	F.S. Age 38	May 1928	Rio Blanco	—	—	—	** Positive in high dilutions.	—	Tick acquired at Rangley, Colo. Fever 3 days. Absent 1 day, then 3 days more. Generalized aching, headache, dizziness, anorexia, vomiting, chilliness. No rash. Recovered.
8	J.B. Adult female	June 1929	Denver	1♂G.P. 5 cc. blood intrap. Mild fever. 1 G.P. Tick emulsion intrap. Mild fever.	No gross genital lesions. No rickettsia demonstrated. Inflammatory reaction at site of inoculation with tick emulsion.	Hgb. 90% RBC 5,090,000 WBC 13,000 Polys. 81% S.Lymphs. 19%	Slight aggl. in low dilution.	No rickettsia demonstrated.	Tick acquired near Denver. Chills and severe fever, two days. Marked local inflammation. No rash. Recovered.
9	D.Mc. Adult male	June 1929	Denver	—	—	—	Negative in all dilutions.	—	Tick acquired near Gunnison. High fever, severe chills. Ulcers at site of 3 tick bites. Patient's symptoms considered due to septic sore throat.
10	Mr. O. Adult male.	May 1929	Denver	Rabbit inoculation. 5 cc. blood intrap. No symptoms. No immunity developed against Mont. strain R. Mt. Sp. Fev.	—	—	Negative in all dilutions.	—	Tick acquired near Denver. Moderate intermittent fever, 5 days, chills, aching, conjunctivitis, photophobia. No rash. Recovered.
11	H.S. Adult male	June 1929	Denver	1♂G.P. Tick emulsion intrap. Mild fever.	Not completed.	—	Negative in all dilutions.	No rickettsia demonstrated.	Tick acquired near Boulder? Chills, conjunctivitis, severe fever, generalized aching, photophobia. No rash. Recovered.
12	Mrs. K. Adult female	May 1929	Denver	—	—	—	—	No rickettsia demonstrated.	Tick acquired in Denver. Moderate fever, chills. No rash. Recovered.

* Previously Reported, Jour. Inf. Dis., Vol. 34, No. 1, July, 1926, pp. 81-88.
** Agglutination by R. Mt. Spotted Fever Laboratory, Hamilton, Montana.

Chart No. IV. Observations in Cases of Atypical Tick Infections

spotted fever and atypical infections. The first six sera were tested by members of the staff in the laboratory in Hamilton, Montana. Ten sera, including two from experimentally infected rabbits, were tested by us. We used as antigens saline suspensions of 24 hour agar slant cultures of four strains of B. *proteus* X_{19}, submitted to us through the courtesy of Dr. R. R. Parger, (Hygienic Laboratory No. 271, Hygienic Laboratory No. 560, Kingsbury and Warsaw). Kelley[5], who reported a series of negative reactions with sera from patients ill with Rocky Mountain spotted fever, used a formolized suspension of a fresh agar culture, Kerlee and Spencer used a very weak formolized suspension of this antigen.

We found the reaction negative with the sera from the experimentally infected rabbits. In one questionable tick-borne infection no agglutination was observed. In the typical cases of Rocky Mountain spotted fever this antigen was agglutinated after about the tenth day of the illness, which is in accord with the observations of Kerlee and Spencer[4].

The positive reaction in three cases of the atypical infection seems to indicate that the Weil-Felix test may also be of value in the diagnosis of this type of illness.

Fletcher and Lesslar[6] report that there are two groups of tropical fever which differ very little clinically. One agglutinates the an-indologenic strains of B. *proteus* X_{19}, such as the Kingsbury strain. The second group agglutinates the indologenic but not the an-indologenic strains. We have noted in our own series of tests only one feeble reaction to the Kingsbury strain, and agglutination with this antigen was not observed in some instances, even when the other strains gave a strong positive reaction. Perhaps, with further investigation, a classification of Rocky

CHART NO. V. RESULTS OF AGGLUTINATION TESTS.

No.	Patient	Date	County	Type Infection	Day of Illness	Course of Illness	Antigen	Serum Dilution					
1	J.C.Y	May,1928	El Paso	Typical R. Mt. spotted fever	11th day	Recovered	Four strains	Positive					
2	J.C.	Spring, 1928	Pueblo	Typical R. Mt. spotted fever	About 4th day	Recovered	Four strains	Negative					
3	C.C.	May,1928	Denver	No rash Severe constitutional symptoms.	6th day	Recovered	Four strains	Positive in low dilutions					
4	I.B.	Spring, 1928	Denver	Typical R. Mt. spotted fever	6th day	Died	Four strains	Negative					
5	F.S.	May,1928	Rio Blanco	No rash. Severe constitutional symptoms.	2nd week	Recovered	Four strains	Positive in high dilutions					
6	C.	Spring, 1928	Conejos	Typical R. Mt. spotted fever	10th day	Recovered	Four strains	Positive in low dilutions					
THE ABOVE TESTS WERE MADE BY THE SPOTTED FEVER LABORATORY, HAMILTON, MONTANA.								20	40	80	160	320	640
7	R.J.	May,1929	Boulder	Typical R. Mt. spotted fever	3rd week	Recovered	Kingsbury strain Warsaw strain	− +	− +	− +	− +	− +	− +
8	S.	June 1929	Mesa	Typical R. Mt. spotted fever	? Early	Recovered	Warsaw strain	−	−	−	−	−	−
9	D.M.	June, 1929	Gunnison	Questionable tick infection	2nd week	Recovered	Warsaw strain	−	−	−	−	−	−
10	O.	June, 1929	Denver	No rash. Severe constitutional symptoms.	3rd week	Recovered	Warsaw strain	−	−	−	−	−	−
11	H.S.	June, 1929	Denver	No rash. Severe constitutional symptoms.	13th day	Recovered	Kingsbury strain Warsaw strain Hyg. Lab. 271 Hyg. Lab. 560	− − − −	− − − −	− − − −	− − − −	− − − −	− − − −
12	J.B.	June, 1929	Boulder	Typical R. Mt spotted fever	3rd week	Died	Kingsbury strain Warsaw strain Hyg. Lab. 271 Hyg. Lab. 560	Weak Weak Weak Weak	Slight aggl. Slight aggl. Slight aggl. Slight aggl.	− − − −	− − − −	− − − −	− − − −
13	Mrs. S.	June, 1929	Denver	Typical R. Mt spotted fever	3rd week	Recovered	Kingsbury strain Warsaw strain Hyg. Lab. 271 Hyg. Lab. 560	− + + +	− + + +	− + + +	− + + +	− + + +	− + + +
14	Mrs. J.B.	June, 1929	Denver	No rash Severe constitutional symptoms	3rd week	Recovered	Kingsbury strain Warsaw strain Hyg. Lab. 271 Hyg. Lab. 560	− + − −	− ± − −	− − − −	− − − −	− − − −	− − − −
15	Rabbit	June, 1929	Denver	Laboratory inoculation with Montana vaccine strain. Typical course.	10th day	Recovered	Warsaw strain	−	−	−	−	−	−
16	Rabbit	June, 1929	Denver	Laboratory infection with Montana vaccine strain. Typical course.	18th day	Recovered	Kingsbury strain Warsaw strain Hyg. Lab. 271 Hyg. Lab. 560	− − − −	− − − −	− − − −	− − − −	− − − −	− − − −

Chart No. V. Results of Agglutination Tests

Mountain spotted fever into subgroups may be determined by this procedure.

Chart No. VI shows graphically the occurrence of "Colorado tick fever" by years. This chart lists a total of 89 cases, but the actual number is very much higher. Since the infection is mild, most doctors do not keep records of such cases and many physicians write that they see from ten to twenty every season.

There are every year too many cases of this type during the tick season to dismiss them as minor indispositions with coincident tick bites.

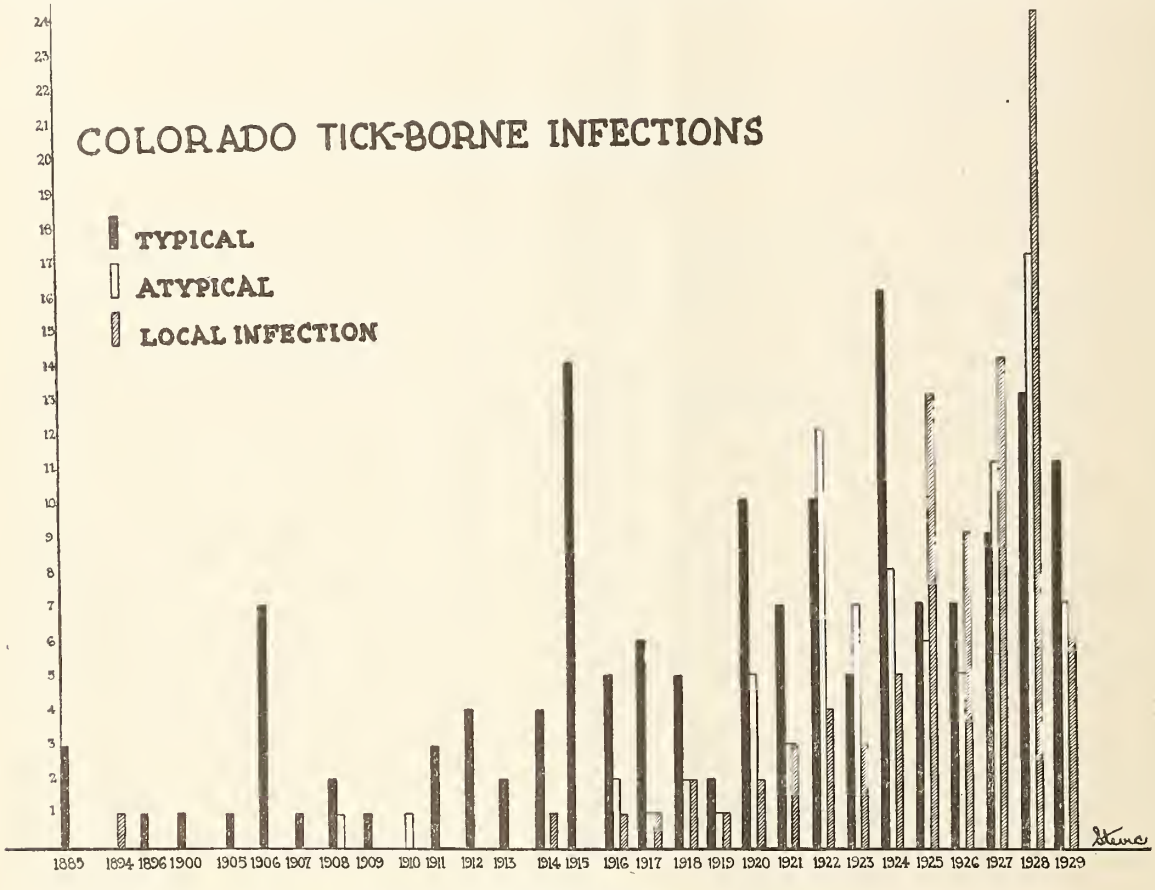


CHART VI

Chart No. VI. Colorado Tick-Borne Infections

If this syndrome should be proved to be an attenuated spotted fever, the descriptive definition of this disease must be modified to include cases without a skin eruption.

Chart No. VI also lists 90 cases of severe local infection following tick bites, and many more such infections occur each season which are not reported. Several physicians wrote that such ulcers eventually had to be excised before healing results.

We have studied one such infection in detail with the following findings: Hemoglobin, 80 per cent; red blood cells, 4,150,000; white blood cells, 8,800; polymorphonuclear cells, 69.5 per cent; small lymphocytes, 26.5 per cent; mononuclear cells, 3.5 per cent; eosinophilic cells, 0.5 per cent. Blood culture showed staphylococcus aureus. A swab from the ulcer on the leg showed staphylococcus, albus and streptococcus. Dark-field examination of the serum from the ulcer was negative for spirochaetes. Wassermann reaction was negative. Agglutination of B. *tularense* was negative. The Weil-Felix test was not made. The patient had chills and a slight fever and recovered within two weeks.

Such indolent ulcerations are not characteristic of ordinary secondary bacterial infections.

Tularemia is not common in Colorado. We were able to collect only ten cases, with several additional doubtful infections. A history of tick bite was not established in any of these patients.

Only one case of ascending paralysis follow-

ing tick bite has been observed in this state, in Estes Park, and this was reported by Bassoe[7].

Many suggestions as to management of tick-borne infections were received from Colorado physicians, but when analyzed, they amount only to early and complete removal of the attached tick and supportive and symptomatic treatment.

Summary

Tick-borne diseases are prevalent throughout the mountainous regions of Colorado.

Rocky Mountain spotted fever is an endemic disease in Colorado, cases having been observed as early as 1885. A total of 211 cases with 49 deaths has been collected.

An atypical infection following tick bite with characteristic constitutional symptoms, but without a skin eruption, is common in Colorado and is locally known as "Colorado tick fever." If this is an attenuated spotted fever, the definition of this disease must be modified to include cases without skin rash.

Indolent ulcers frequently occur at the site of tick bite.

Transmission of tularemia by the bite of a wood tick has not been reported in Colorado.

Tick paralysis is a rare disease in this state.

The Weil-Felix agglutination reaction was found positive in several cases of typical Rocky Mountain spotted fever and of "Colorado tick fever." This test is valuable and should be made in all obscure infections following the bite of a wood tick.

BIBLIOGRAPHY

[1]Wolbach, S. B.: Studies on Rocky Mountain Spotted Fever, J. Med. Res. 41:1-197 (November) 1919.

[2]Parker, R. R.: Rocky Mountain Spotted Fever. The Montana State Board of Entomology, Seventh Biennial Report, 39-62, 1927-1928.

[3]Becker, Frederick E.: Investigations on Rocky Mountain Spotted Fever in Colorado. J. Inf. Dis. 39:81-88 (July) 1926.

[4]Kerlee, A. L., and Spencer, R. R.: Rocky Mountain Spotted Fever. A preliminary Report on the Weil-Felix Reaction, Pub. Health Rpts. 44: 179-182 (January 25) 1929.

[5]Kelley, F. L.: Weil-Felix Reaction in Rocky Mountain Spotted Fever, J. Inf. Dis. 32·223-225 (March) 1923.

[6]Fletcher, Wm., and Lesslar, J. E.: Tropical Typhus and Brill's Disease, J. Trop. Med. and Hyg. 29:374-378 (November 15) 1928.

[7]Bassoe, P.: Paralysis of Ascending Type in an Adult Due to the Bite of a Wood-Tick. Arch. Neurol. and Psychiat. 11:564-567 (May) 1924.

PUBLIC HEALTH NOTES

Editor J. W. Amesse, M.D.

Denver's Health Inc.

In his address as the retiring president of the Denver Public Health Council, Dr. R. P. Forbes made some pertinent remarks concerning the financial stability of Denver's Health Inc. Although the stock which was quoted at 44 cents per capita in 1928 is less valuable than that of some other cities this is only because it has not been considered a public utility in this community. Syracuse Health Inc. was quoted at $1.75 per capita for the same year and earns its dividends several times over.

The status of Denver's public health activities is about the same today, the speaker pointed out, as it was in 1928, the year of the appraisal of the American Public Health Association. He called attention to a few of the more urgent problems that are still unsolved: the tuberculosis death rate, for example, which is three times that of any other large city. This is of course due to imported cases. Yet Denver disclaims any responsibility for the tuberculous individual unless he can survive here for twelve months and she disclaims any "considerable responsibility" to her own citizens who are exposed to tuberculosis in shops, restaurants, etc. Attention was also drawn to the absence of open air schools (despite our climatic advantages) and to the difficulty in getting tonsilectomies for indigent children. Mention was also made of the high infant and maternal mortality. Dr. Forbes urged upon the Council its duty to collect and to disseminate the facts about our health situation to the end that the public conscience may be aroused and fruitful action be taken.

The Public Health Council was next addressed by Miss Anita Jones, the assistant director of the Maternity Center Association of New York City. She said that 17,000 mothers were lost in 1928 in the United States. For every 1,000 live births, 6.9 mothers die, and Denver has more than her

share of these maternal deaths. There is one baby born in the United States every 13 seconds, and one out of 14 of these babies is doomed to die before one year of age. A mother dies every 34 minutes in the United States in bringing these babies into the world.

She quoted a study made in the Louisville City Hospital, Kentucky, under the direction of Dr. Alice Pickett, of the 2,061 cases under prenatal clinic care. None of the twelve that developed eclampsia died, while of 1,156 cases that did not have prenatal care thirty-five developed eclampsia and ten died.

Adequate prenatal care besides saving lives assures for the mother the minimum of mental and physical discomfort before the birth of her baby, the maximum of mental and physical fitness when the baby arrives, the reward of a well baby, and the knowledge of how to care for herself and her baby.

Miss Jones congratulated the Public Health Council upon their frank recognition of Denver's problem and their energy in seeking a scientific solution.

LIBRARY NOTES

EDITOR J. J. WARING, M.D.

BOOK REVIEWS

The Treatment of Diabetes Mellitus with Higher Carbohydrate Diets. A Textbook for Physicians and Patients. By William David Sansum, M.S., M.D., F. A. C. P.; Percival Allen Gray, Ph.D., M.D.; Ruth Bowden, B.S. Harper & Brothers, Publishers, New York and London. 1929. Price, $2.50.

The title of this monograph is no misnomer, i. e,. it is an attempt to evaluate higher carbohydrate dietaries in the treatment of diabetis mellitus. The authors clearly present convincing data as to the superiority of such diets over the high fat hang-over diets of pre-insulin days. With seeming good reason, they contend that the distressing vascular complications may thus be reduced in incidence and severity. Among other arguments for such "normal" menus, patients are better satisfied and feel more alert and active. Also, they live their diabetic lives in greater assurance of escaping the perils of acidosis. The interesting fact is that, despite this higher carbohydrate feeding, the insulin dosage is not commensurately increased. This can only mean, apparently, that insulin potency is directly or indirectly, influenced by the presence of fat in a prescribed diet, and is not wholly dependent upon the available glucose.

The authors seem to digress a trifle in attempting to establish the relationship existing between acid-ash food and vascular disease in general, e. g., hypertension, arteriosclerosis, nephritis, and their complications. The data presented are encouraging and, according to the authors, have had some confirmation by other workers. The broad application of these findings, if established, is perfectly apparent.

The first half of the book deals with the above problems and their application. The second is merely a presentation of menus so constructed and a discussion for diabetic patients as to their methods of self-care. C. F. KEMPER.

The Surgical Clinics of North America. (Issued serially, one number every other month.) Volume 9, number 6. (Lahey Clinic number—December, 1929), 188 pages with 51 illustrations, and complete index to Volume 9. Per clinic year (February, 1929, to December, 1929.) Paper, $12.00; Cloth, $16.00. Philadelphia and London. W. B. Saunders Company.

Lahey has surrounded himself with a group who write pleasingly and instructively upon the subjects selected for his clinic number.

About one-third of the volume contains articles devoted to the thyroid gland, of particular interest to one doing thyroid surgery, and by reason of Lahey's vast experience in this particular field, it is needless to enlarge on their value.

On account of the rather recent advent in the field of anesthesia, of Sodium Amytal and Overtin, the article on these drugs by Lincoln F. Sise is of particular interest.

Robert L. Mason brings out a few interesting points in his article on "The Repair of Inguinal Hernia." CUTHBERT POWELL.

The Surgical Clinics of North America. (Issued serially, one number every month.) Volume 9, number 5. (Philadelphia number-October, 1929), 299 pages with 111 illustrations, per clinic year (February, 1929, to December, 1929). Paper, $12.00; Cloth, $16.00. Philadelphia and London: W. B. Saunders Company.

This volume of the Surgical Clinics of North America, a "Philadelphia Number," covers an unusually wide range of subjects, none of which lack interest, all are instructive.

The treatment of Gastric and Duodenal Ulcer, from the Clinic of Dr. Charles F. Nassau of Jefferson Hospital. Factors influencing Gynecologic Mortality and Morbidity, from the Clinic of Dr. Charles C. Norris, Hospital of the University of Pennsylvania. Traumatic Rupture of the Spleen from the Clinic of Dr. Calvin M. Smyth, Jr., Methodist and Abington Memorial Hospital, are in the opinion of the reviewer, among the most interesting, readable and instructive articles of this volume, of value to both internist and surgeon alike. CUTHBERT POWELL.

"Treatment of Fractures." By Lorenz Böhler, M.D., Chief Surgeon and Director of the Vienna Accident Hospital. Authorized English translation by M. E. Steinberg, M.S., M.D., of Portland. Oregon. 185 Pages with 234 Illustrations. Vienna, Wilhelm Maudrick, 1929. Price $5.00.

This small volume gives a clear and satisfactory exposition of the author's methods, which are conservative, often original and have proven to be unusually effective during his vast military and civil experience.

He very properly emphasizes the necessity of

a thorough understanding of the influence of muscular pull upon the displacements of fractures and the utilization of this knowledge in their treatment, making his points clear by appropriate illustrations and examples and condemning the older idea that traction alone is sufficient.

In connection with fractures of the lower end of the humerus he makes the interesting remark that "the plaster-of-Paris cast is usually blamed" for Volkmann's ischaemic paralysis, "but the position of the fragments and the strangulation of the vessels, especially when the elbow is in extreme flexion, are really to be blamed."

The importance of traction strictly in the line in which the proximal fragment naturally points is strongly and repeatedly emphasized, which not only acts longitudinally, but also laterally by the splint-like side-pressure of the extended muscles. Skeletal traction may be better than that obtained by means of adhesive-plaster.

Great stress is laid upon the allowance of sufficient time for firm consolidation, which he thinks is frequently not done. For instance, in the forearm, three to four weeks is usually advised, while in reality it should be eight weeks or even longer. "Transverse fractures in the middle of the tibia are never solid in six weeks, but require ten weeks and frequently more."

The foremost aim in the treatment of fractures is to get a good functional result, the exact position of the fragments being of less importance, within reasonable limits. By "functional treatment" he understands "the complete uninterrupted fixation of the fragments in good position, with the simultaneous active movements of all the joints, vessels and nerves and also the skin should be considered,—and one organ or tissue should not be favored at the expense of another." In carrying out such treatment he prefers the plaster cast to other form of splinting, applying it directly to the skin without padding. He contends that this is without danger if the application is properly made and the limb carefully watched, and that the patient is more comfortable and the results better owing to more complete fixation. The application of such casts is carefully explained. [Many surgeons, however, will hesitate to advise such a procedure in general practice.]

An advance in the employment in the lower extremity of casts without padding, is that the patient is able to walk soon after their application, thus increasing the blood-supply, loosening up the muscles, and causing a certain irritation of the ends of the fragments which favors their consolidation. In this connection he lays down the following rule: "If we reduce exactly a broken joint and continuously hold it in a good position until union takes place, and at the same time allow the use of the fractured extremity, we obtain a movable joint; while, on the other hand, if we apply massage and passive movements in the first days after the fracture, the joint becomes stiff." This, he explains, is because active use tends to prevent disabling pathologic changes in the ligaments and other soft tissues as well as atrophy of the bone, and even after these changes already have occurred, they often may be overcome by the application of an immobilizing cast. Hence he considers "passive movements in all recent injuries and diseases as being most harmful." After consolidation has taken place, however, physio- and mechanotherapy have their important places.

In the reduction of fractures, local anesthesia is strongly recommended. It is obtained by injecting into the vicinity of the lesion 15 to 20 cc. of a 2 per cent solution of novacaine, its efficient action depending upon its almost instantaneous diffusion throughout the ever-present hematoma. Only when the hematoma is unusually small or the fracture is old is it necessary to inject the entire circumference of the bone. In fractures of the arm, anesthesia of the brachial plexus (Kulenkampff) is often indicated, although it occasionally is ineffective.

Pseudarthrosis and delayed union are regarded as due much more to local than to general conditions, and especially to too short or interrupted immobilization, the time necessary for firm union upon the size of the bone, the particular bone, the type of fracture, the kind of injury, and the age and general condition of the patient. If sufficient time is given, consolidation seldom fails; ten to twenty weeks often being necessary for the tibia, six to twelve weeks for the radius, and six to eight months for the neck of the femur! During this time the slightest movement may destroy the delicate new blood-vessels, hence the necessity for perfect immobilization.

Operations, especially if foreign material, such as a Lane's plate, is introduced, are apt to result in delayed union.

In the treatment of delayed union and pseudarthrosis, little confidence is expressed in any form of internal medication. The injections between the fragments, of blood, etc., may be effective in delayed union, but immobilization and use of the extremity is better, according to the author. "In fractures of the shaft of the long bones—we must wait from six months to a year before we are allowed to pronounce the case as a definite pseudarthrosis."

Resection of the ends of the bones far enough to expose the marrow, and the removal of all scar tissue, perhaps with the addition of a bone-graft, offers the best chance of success in pseudarthrosis. Opinion is reserved on the utility of the bone splintering recently by Kirschner. "The use of metallic supports or other foreign bodies is of no avail."

In the treatment of fresh compound fractures, the excision of all injured and soiled tissues and the immediate closure of the wound without drainage is strongly recommended. The lesion is then treated as a closed fracture. The use of bone sutures or any attempt at instrumental reduction of the fragments is dangerous.

The author is firmly opposed to the operative treatment of most fractures. "Thousands of lives have been sacrificed on account of this procedure and still more have been crippled. Osteomyelitis and pseudarthrosis are constantly seen—and section of the radial nerve or of the peroneal nerve are also not infrequent." He affirms that the time of healing following operations is twice as long in fractures of the femur and humerus and that the cost is three times as great, while the fact remains that "nearly every displacement can be reduced by a correspondingly powerful pull exerted directly on the bone." (Skeletal traction.) He also calls attention to the many dangers from operation—sepsis, disturbance of vascular nutrition, injury to nerves, etc.

The second part of the book is devoted to the treatment of individual fractures and is replete with many useful and original hints and methods of procedure, clearly and concisely described, with illustrations. Altogether the treatise deserves careful reading and consideration, and should be useful to both students and practitioners.

LEONARD FREEMAN.

Secretarial Notes and Comment

Edited by Harvey T. Sethman, Executive Secretary

ACTIVE COMMITTEES

INACTIVITY of committees, standing and special, has for years been the despair of officers of the Colorado State Medical Society, if minutes of Annual Sessions over a decade are to be taken at their face value. Information gleaned from many sources would seem to indicate a precedent: that committees named late each autumn by the president need not even meet until about two weeks before the next Annual Session, and then only because the by-laws require a written annual report.

If this has been a precedent, the precedent has been smashed. These pages include reports of meetings of the Board of Trustees and several committees that have taken place since the last issue of Colorado Medicine went to press. The briefest perusal of them is proof enough that the Society's much-talked-of "re-birth" is more than a dream.

Our standing committees number eight; our special committees, eleven. It is through them that the work of the Society must be carried forward. Let this remind all chairmen that these pages are open to their reports—may they be many!

IT CAN BE DONE

A COMPARATIVELY small but nevertheless significant episode recently demonstrated the truth of one of the arguments advanced in recent years in favor of more efficient organization of the Colorado State Medical Society. To use a figure of speech, it proved the value of early diagnosis and early treatment by the organized profession when the bacillus "state politics" threatens an institution dedicated to public health.

For more than a year the lay board of control of the State Home and Training School for Mental Defectives at Ridge, Colo., ignored the law requiring that a medical superintendent direct the Home. Finally a medical man was appointed, but the board still ignored the law's demand that the superintendent must have had two years' experience in a similar institution. The position comes under the civil service laws, and politicians had arranged to postpone for two years the required competitive examination, so that the "right man," from a partisan viewpoint, could qualify. Political expediency only was being considered—no thought given to proper care of scores of mentally deficient children who are inmates of the Home.

A brief investigation by the State Society's executive office verified these facts. Within a few days state officials woke to find a militant profession demanding that the law be observed, that an examination be conducted to find a properly trained medical superintendent. A majority of the civil service commission willingly offered co-operation with the profession in obtaining such a result.

The examination was called for February 21, and it was not to be conducted along political lines, but by the faculty of the University of Colorado School of Medicine.

WHERE CREDIT IS DUE

THIS department of Colorado Medicine doffs its hat to the Kit Carson County Medical Society. Other societies, principally the larger ones, make note!

The Kit Carson Society is one of our smallest, covering a sparsely settled district. It has no two members in the same town. Yet, before Feb. 1 had rolled around, every member had paid his 1930 dues to Dr. W. L. McBride, secretary, and Dr. McBride had mailed the total to the State Society's executive office.

Several other societies are close to the coveted 100 per cent renewal of 1929 membership. Who will be next?

MEDICAL LEGISLATION

The medical profession of the forty-eight United States is by no means united on a program of medical legislation and licensure, and for the present there seems to be no hope of bringing about. the slightest semblance of uniformity in medical practice acts or related laws.

This rather pessimistic statement is the writer's generalized conclusion after attending the Annual Congress on Medical Education, Medical Licensure and Hospitals, held Feb. 17, 18 and 19, at Chicago under the auspices of the American Medical Association. Despite this general view, however, ideas were developed at the congress both in prepared papers and in discussions which, if carried out, will in time bring some order out of the present chaos.

The writer attended programs devoted to medical licensure and medical legislation. Dean Maurice H. Rees of the University of Colorado School of Medicine and Hospitals and Dr. Philip Hillkowitz represented the state at the concurrent programs concerned with problems of medical schools and hospitals. Subsequent issues of Colorado Medicine will contain reports of the latter sessions.

Most far-reaching of all action regarding medical legislation was a resolution adopted by the

Federation of State Medical Boards which in spirit if not in words condemned the latest modern idea in medical practice acts; namely, the Basic Science Law. Within a few years varieties of this law have been enacted in six states and the District of Columbia. A majority of the federation wished to word a resolution demanding repeal, but others succeeded in taking the bitterness out of the resolution.

Those of broader experience in the conference seemed agreed that where a state has multiple examining boards—a separate board for doctors of medicine, for osteopaths, for chiropractors, etc.—the basic science law is a necessity if the public is to have protection against incompetent and uneducated practitioners. Where a state has a single examining board made up solely of doctors of medicine they seemed agreed that such a law is unnecessary if the medical practice act is broadly and adequately drawn to give the board ample jurisdiction over cults. Where the single board is composite—no two opinions were the same. Despite advancement of these ideas, general dissatisfaction was evidenced with the operation of reciprocity agreements where a basic science law interferes, and the majority felt that the original purpose of the federation—to bring about suitable reciprocity—is being defeated by states which enact this new law.

Two papers on these subjects should prove of real value to Colorado physicians, regardless of the individual's attitude toward basic science legislation. They were: "The Medical Profession and Medical Licensure," by Holman Taylor, M.D., secretary, State Medical Association of Texas, and "Fundamentals of a Model Medical Practice Act," by Harold Rypins, M.D., secretary, New York State Board of Medical Examiners. A third paper of self-explanatory title, "Legislative Obstacles in Obtaining Adequate Medical Laws," by J. R. Neal, M.D., chairman, Legislative Committee, Illinois State Medical Society, was of real educational value for its summing up of these obstacles and its suggestion of practical remedies. Defense of the basic science law idea, though not the theme of the paper, was adequately presented by Walter L. Bierring, M.D., secretary, Federation of State Medical Boards, Des Moines, Iowa, in a paper entitled "Relation of Basic Science Examinations to Medical Licensure." All papers presented at the meeting will later be published in the Federation Bulletin.

It is unfortunate that every member of every state medical board, particularly those of our own state, could not have been present to hear and see two presentations concerning credentials. These were "Fraudulent Credentials Submitted for Licensure" (illustrated), by Charles B. Pinkham, M.D., secretary, California Board of Medical Examiners, and "Verification of Credentials," by Stanley H. Osborn, M.D., state health commissioner, Connecticut. Dr. Pinkham presented in detail many methods used by individuals and diploma mills in the manufacture of fraudulent diplomas, forged documents, fake photographs, and similar instruments designed to mislead boards of examiners. He pointed out means for detecting such fraud and warned examining authorities against the more frequently used systems of forgery.

Dr. Osborn emphasized the deficiencies in medical practice acts that in many cases prevent prosecution even after positive evidence of fraudulent credentials and of false statements on application blanks has been obtained. He took an attitude distinctly opposed to the school of thought which advocates placing as few details as possible in the law itself and giving the board instead all possible broad powers to draw requirements of applications and credentials. He urged on the contrary that the law go into detail regarding the exact form of application and that it state in detail each question an applicant must answer in setting forth his record of education and personal history. With such an application sworn to, prosecution becomes simple once fraud is detected.

The conference was educational; it developed a number of new ideas; it revamped and moulded many old ideas. However, it strongly impressed the writer thus: That the medical profession of Colorado can learn much regarding medical legislation and licensure from the forty-seven other states and should use every opportunity to do so; but the profession of Colorado must study with extreme care any majority decision of the Federation of State Medical Boards, for the majority of the federation does not realize that medical legislation is lagging behind medical practice.

HARVEY T. SETHMAN,
Executive Secretary.

Board of Trustees

The February meeting of the Board of Trustees of the Colorado State Medical Society was called to order at the Corwin Hospital, Pueblo, at 6:00 p. m., February 6, by President William Senger. Those present were First Vice President John B. Crouch, Treasurer L. W. Bortree, Executive Secretary Harvey T. Sethman.

It was voted to have the executive secretary attend the Congress on Medical Education, Licensure, Public Health and Hospitals to be held in Chicago, February 17, 18, 19, 1930.

Reports of recent meetings of the committee on Public Policy, Committee on Publication, Committee on Scientific Work, and Committee on Arrangements were received from the executive secretary and approved.

It was directed that a letter be sent to officers of the Woman's Auxiliary of the American Medical Association promising the co-operation of the Colorado State Medical Society in furthering the promotional activities of the National Auxiliary.

Tentative contracts for hotel accommodation of the Sixtieth Annual Session as presented by the executive secretary were approved.

A report that the Weld County Medical Society had elected a state officer as county society delegate to the Annual Session was discussed. The Board ruled that this is in violation of Article VIII, Sec. 3, of the Constitution and directed that the Weld County Medical Society be so informed.

The Board directed that a special committee be created to study plans of Medical Defense and Credit Rating existing in other states and to prepare suitable recommendations for presentation to the House of Delegates at the Sixtieth Annual Session. The executive secretary was named ex-officio chairman of the committee.

The Trustees adjourned subject to call.

Committee on Public Policy

The Committee on Public Policy met at 1 p. m., January 27, in the Shirley Savoy Hotel, Denver, at the call of the Chairman, William H. Halley. Others present were C. F. Kemper and H. S. Finney, Denver; L. H. McKinnie, Colorado Springs; L. E. Likes, Lamar and H. T. Sethman, secretary ex-officio.

On motion of Dr. Finney, the chairman and secretary were directed to write a letter to the Colorado State Civil Service Commission supporting the competitive examination plan for the ap-

pointment of a Superintendent for the State Home and Training School for Mental Defectives at Ridge, Colorado, and urging the Commission to call an examination for this position as soon as possible.

The secretary was directed to investigate the extent to which other state medical societies have used advertising in lay publications for the promotion of the Periodic Health Examination.

An arrangement made between the executive office and the Colorado Association for handling all inquiries directed to the Association on medical questions by the executive office of the State Society was approved.

The secretary was directed to make a survey of the State Society membership to determine if possible the exact number or percentage of physicians engaged in state medicine, contract practice, corporation practice, and salary practice, and what average proportion of physicians' time is taken in charity work.

House Bill No. 43, known as the Registration Fee Law, was discussed at length. The following resolution was adopted and it was directed that the resolution be published in Colorado Medicine for the information of the membership.

> Whereas, House Bill No. 43, commonly known as the "Registration Fee Law," as enacted by the Twenty-Seventh General Assembly of the State of Colorado has become a law and has recently been put into effect by the State Board of Medical Examiners; and
>
> Whereas, This new law imposes certain duties upon members of the medical profession and imposes drastic penalties for its violation; and
>
> Whereas, The Committee on Public Policy of the Colorado State Medical Society has investigated the purposes and effects of this new law; now be it
>
> Resolved, That this Committee, under the authority granted it by the Constitution and By-Laws of the Colorado State Medical Society and subject to advices by the House of Delegates, declares this Society's approval of the principle of the Registration Fee Law for the present and until its operation can be studied and evaluated; and be it further
>
> Resolved, That this Committee calls upon all members of the Colorado State Medical Society and members of the profession generally to observe and support this law so long as it is in effect and to co-operate with the State Board of Medical Examiners in this law's administration; and be it further
>
> Resolved, That this Committee and this Society call upon the next incoming General Assembly to so amend the law as to reduce to equality with the fee charged resident practitioners of Colorado the fee now charged nonresident licentiates, thus to eliminate a grossly unfair tax now being imposed against many practitioners in other states who hold Colorado licenses.

The Committee adjourned subject to call of the chairman.

Committee on Publication

The Committee on Publication met in the executive office at the call of the chairman, C. S. Bluemel, Jan. 10, 1930. An adjourned session was held Jan. 23, with all members present.

The Committee established a number of office rulings necessitated by the change in management of Colorado Medicine.

It was ruled that the Scientific Editor is to have final authority over all reading matter published in Colorado Medicine. The Scientific Editor is to be responsible for editing all reading matter, correcting galley proof, and directing a monthly page dummy. The Managing Editor is to have final authority over the advertising sections, except that all advertising of medical and scientific products not previously approved by the American Medical Association is to be submitted to the chairman of the Committee on Publication before acceptance. The Managing Editor is to prepare all material for the News Sections. The Managing Editor is to assume responsibility for all mechanical features of the Journal but is to make no radical changes in the monthly dummy without the approval of the Scientific Editor.

A minimum of forty-eight and a maximum of sixty-four pages was adopted as the general rule for the size of the Journal, the maximum to be exceeded in emergency or when justified by advertising.

The Managing Editor was directed to establish a new section of Colorado Medicine under the title "Secretarial Notes and Comment," to be edited by him and be devoted to organization, promotion, and secretarial news as distinct from the regular editorial, scientific, and news sections.

Advertising rates for regular and preferred space as suggested by the A. M. A. Co-operative Medical Advertising Bureau were approved.

Action of the Scientific Editor in establishing separate departments under the titles "Library Notes" and "Public Health Notes" was approved.

Joint action of the Scientific Editor and the Managing Editor in drawing up rules of procedure covering methods of preparing and editing manuscripts and cuts was approved. It was directed that all participants in the program of the Annual Session be provided with a draft of this procedure to aid them in preparing manuscripts for publication.

The Committee adjourned subject to call of the chairman.

Committee on Arrangements

The Committee on Arrangements for the Sixtieth Annual Session met at luncheon January 29 at the Corwin Hospital, Pueblo, on call of the chairman, Dr. Frederic Senger. Other members of the committee present were R. H. Finney, George E. Rice, both of Pueblo, and Harvey T. Sethman secretary ex-officio, and by invitation, President William Senger and Crum Epler, member of the Committee on Scientific Work.

Dates for the Sixtieth Annual Session were set as September 9, 10, 11, 1930.

The Congress Hotel, Pueblo, was selected as general headquarters for the Session.

A plan of the executive secretary for sending a printed prospectus to each prospective commercial exhibitor was approved. Dr. Finney was appointed treasurer of the committee for such funds handled by the committee as do not come within the jurisdiction of the regular officers of the State Society.

The chairman and executive secretary were jointly empowered to make arrangements and contracts with hotels and other business firms as may be necessary in the conduct of the Session.

Dr. Epler reported that at a meeting of the Committee on Scientific Work it was voted to hold no afternoon meetings on the last day of the Session.

It was voted that a joint meeting of the Committee on Arrangements and Committee on Scientific Work should be held in the near future to arrange times of day for scientific meetings, meetings of the House of Delegates, and entertainment features.

MEDICAL SOCIETIES

Northeast Colorado Medical Society

The Northeast Colorado Medical Society met at the Sterling City Hall, Thursday, February 13, preceded by a dinner at the Graham Hotel for members and visitors.

The Society had as its guests Dr. Tracy Love and Mr. Harvey T. Sethman, executive secretary of the State Medical Society, both of Denver. Dr. Love gave an informal talk on Gastric Disturbances and Diabetes Mellitus which was entertaining, instructive and practical. Mr. Sethman gave a resume of the work of the State Society and his newly-created office, setting forth the efforts of this office on behalf of the individual physician and in legislative matters affecting the medical profession in the state of Colorado.

Dr. Daniel presented two very interesting and unusual cases.

A large attendance at this meeting was impossible on account of prevailing bad roads. Those present were: Drs. Daniel, Hummel, Hays, Morehouse, Tripp, Elliff, Reifschneider, Tripp, Schmitt, and Latta of Sterling; and Drs. Kinzie and Mooney of Haxtun, and Dr. Huff of Iliff.

Officers for 1930 were elected at a previous meeting, as follows:

President: J. H. Daniel, Sterling.
Vice President: M. R. Fox, Sterling.
Secretary-Treasurer: E. P. Hummel, Sterling.
Board of Censors: J. E. Naugle, 1931; W. E. Hays, 1932; J. H. Daniel, 1933, all of Sterling.
Delegate: J. W. Kinzie, Haxtun; Alternate, W. E. Hays, Sterling.

* * *

Larimer County Medical Society

The Larimer County Medical Society met at the College Cafeteria for the regular February meeting.

Drs. Brown, Honstein, and Humphrey reported on, and discussed collection ideas. This committee was continued.

Dr. Taylor of the Library Committee reported that there were about ten feet of good books. It was decided to send part of these books to the hospital and allow any of the doctors to take the remainder if they wished.

The application of Dr. Roy Wiest of Estes Park was presented. The rules were suspended in the case of Dr. Wiest and he was elected by acclamation.

The meeting then adjourned to the Veterans Building where two interesting papers were given. One on "New Developments in Physiology" was read by Dr. R. Bourne, and the second was on "Blood Typing" by Dr. Floyd Cross.

The discussion of these papers was opened and carried on by Drs. Cary, Johns, Clark, and Platz, and closed by Drs. Bourne and Cross.

LOWELL LITTLE, M.D.,
Secretary.

* * *

Las Animas County Medical Society

At a recent meeting of the Las Animas County Medical Society officers were elected for the ensuing year. Eighty per cent of the 1929 members already have paid their 1930 dues.

The 1930 officers are:

President: H. E. Abrums, Trinidad.
Vice President: D. D. Costigan, Trinidad.
Secretary-Treasurer: M. C. Albi, Trinidad.

Fremont County Medical Society

The following officers of the Fremont County Medical Society have been elected for terms to expire Jan. 26, 1931:

President: D. A. Shoun, Canon City.
Vice President: L. E. Rupert, Florence.
Secretary-Treasurer: Archie Bee, Florence.
Board of Censors: R. E. Holmes, Canon City; E. B. Lynch, Canon City; A. D. Waroshill, Florence.
Delegate: V. A. Hutton, Florence; Alternate, J. D. Hinshaw, Canon City.

* * *

Pueblo County Medical Society

Following are the officers recently elected for the Pueblo County Medical Society:

President: F. M. Heller, Pueblo.
Secretary-Treasurer: George A. Unfug, Pueblo (two-year term).
Membership Committee (Board of Censors): Amherst Merriman, C. N. Caldwell, A. R. Williamson, all of Pueblo.
Committee on Public Policy: C. W. Streamer, chairman; George Pipkin, J. H. Woodbridge, all of Pueblo.
Delegates: H. T. Low, R. C. Robe, George Myers; Alternates, C. N. Caldwell, George Pipkin, George Rice.

* * *

Mesa County Medical Society

Following are the officers of the Mesa County Medical Society, elected for terms expiring Dec. 31, 1930:

President: E. H. Munro, Grand Junction.
Vice President: H. W. White, Fruita.
Secretary-Treasurer: V. T. DeWar, Grand Junction.
Board of Censors: G. C. Cary, C. W. Reed, A. G. Taylor, all of Grand Junction.
Program Committee: J. S. Orr, chairman, Fruita; H. R. Bull, Grand Junction; E. H. Munro, Grand Junction.
Delegate: G. C. Cary; Alternate, C. W. Reed.

* * *

Kit Carson County Medical Society

Officers of the Kit Carson County Medical Society follow, all terms expiring Dec. 31, 1930, unless otherwise noted:

President: H. L. Williams, Flagler.
Vice President: W. C. Keller, Genoa.
Secretary-Treasurer: W. L. McBride, Seibert.
Board of Censors: F. L. Bergen, Burlington, 1930; H. L. Williams, 1931; W. L. McBride, 1932.
Delegate: W. L. McBride; Alternate, H. L. Williams.

Arkansas Valley Medical Association

The mid-winter session of the Arkansas Valley Medical Association met at the Vail Hotel, Pueblo, Colo., at 10:45 a. m., February 6, with sixty-nine delegates present.

The meeting was called to order by the president, Dr. F. M. Heller of Pueblo. The minutes of the preceding meeting were read and approved. The president appointed Dr. Curfman, Dr. Johnson and Dr. Stoddard as nominating committee for officers for the ensuing year.

The scientific program was then opened by a paper by Dr. Finney of Pueblo on "Dyspepsia." The paper was discussed by Drs. Epler, Snedec, Stoddard, Singer, Davis, Curfman and Rupple, Dr. Finney closing.

The next paper on the program was read by Dr. Franklin Blotz of Rocky Ford, on "Acute Appendicitis Simulating Acute Gastroenteritis in Childhood." The paper was discussed by Drs. Timmons, Geissinger, Woodridge, Stoddard, Allen, Epler, Rupple, and Boyd, Dr. Blotz Closing.

Dr. Geissinger of Pueblo then presented a paper on "Some Acute Abdominal Conditions in Childhood, Secondary to Certain Parenteral Infections." This paper was discussed by Drs. Woodbridge, Boyd, Pattee, Dr. Geissinger closing.

The scientific meeting then adjourned for luncheon.

The meeting reconvened at 2:15. Dr. E. J. Brady of Colorado Springs, state representative from El Paso county, discussed the state legislative bill on tuberculosis and also the new annual state registration law. This discussion was participated in by Drs. Blotz, Crouch, Davlin, Curfman and Singer, with Dr. Brady making a few remarks in closing. It was then moved and carried that the Tuberculosis Committee of the State of Colorado be endorsed by the society.

Mr. Sethman, the state secretary, gave the society some of his views concerning the political activity of the State Medical Society and its plans for the same.

The scientific program was resumed by a paper by Dr. J. J. Pattee, Pueblo, Colorado, on "Non-operative Treatment of Squint in Children." The discussion was participated in by Drs. Hopkins, Wise, Webb, L. E. Thompson, Rusk, Singer, Boyd and McDonough.

The next paper was presented by Dr. Conway of Colorado Springs, on "Medical Aspects of Peptic Ulcer." This was discussed by Drs. Crouch, Likes, Allen, Heller, Gruber, Knowles, Rupert, Burkhardt and Davis, Dr. Conway closing.

At this time the nominating committee presented its report, which was as follows: For president, Dr. L. E. Likes of Lamar; for vice president, Dr. T. A. Davis of Portland; for secretary-treasurer, Dr. L. A. Conway of Colorado Springs. It was then moved and carried that the report be accepted and that the secretary be instructed to cast a unanimous ballot for these men.

Dr. Allen of Denver then presented a paper on "Chronic Small Intestine Stenosis." This paper was discussed by Drs. Davlin, Johnson and Singer.

The concluding paper on the program was by by Dr. Curfman of Salida on "Intestinal Obstruction." The discussion was participated in by Drs. Epler, Singer, Smith, Snedec, Knowles and Curfman.

REPORT OF MEETING OF COLLEGE OF SURGEONS

The sixth annual meeting of the Inter-Mountain section of American College of Surgeons, comprising the four states Colorado, Idaho, Utah and Wyoming, was held in Denver, January 27th and 28th, with headquarters at Cosmopolitan Hotel. Dr. Edward Dean was chairman of the Committee of Arrangements, who, with his committee, arranged for an interesting group of clinics and conferences. The guest speakers were Dr. Alton Ochsner, professor of surgery at Tulane University, Dr. Samuel R. Cunningham, professor of orthopedic surgery, University of Oklahoma School of Medicine, and Mr. Robert Jolly, superintendent of Baptist Hospital, Houston, Texas.

The home office of the College of Surgeons was represented by Dr. Malcolm T. MacEachern, director of hospital activities, and Dr. Bowman C. Crowel, director of clinical research. They presided over the conference regarding the standardization of hospitals and set forth the program and rules governing hospitals that are recognized by the college today. Also at the public meeting held Tuesday night, Dr. MacEachern showed an interesting movie film showing the separate departments of a modern hospital of today, laying emphasis upon the supervision of this type of hospital to safeguard the welfare of the patients at large.

The scientific program consisted of papers read by Dr. H. P. Kirtley and Dr. F. A. Goeltz of Salt Lake City, Dr. George O. A. Kellogg, Nampa, Idaho, and Dr. H. Ray Hatch, Idaho Falls, Idaho.

The morning clinics were held at Colorado General, St. Luke's, Children's and Fitzsimons in opthalmology, urology, orthopedic surgery, gynecology and obstetrics and general surgery.

One of the outstanding papers of the meeting was that of Dr. Ochsner upon intraperitoneal complications of acute appendicitis in which he made a plea for conservative treatment of a frank peritonitis, advising absolute restriction of fluids by mouth but resorting to intravenous, subdermal or rectal fluids, keeping the patient in Trendelenberg's position until the infection has localized and then drainage of the pelvic abscess through the rectum. He presented lantern slides of the method of choice of draining sub-phrenic abscesses. He showed his own method devised by an associate and himself by which he approached the diaphragm posteriorly, making an incision over the twelfth rib and parallel transversely to the spinous process of the first lumbar vertebra. Thereby he was able to reflect the peritoneum downward from the diaphragm and open directly into the abscess extraperitoneally. He further quoted statistics of other clinics showing the mortality of subphrenic abscess ranged from 100 per cent to 27 per cent while his own series had been reduced to less than 7 per cent.

The other outstanding paper was read by Dr. Samuel Cunningham upon treatment of fractures. Out of an unusually large practice averaging 1,500 cases per year for past twelve years he stated he had never used a bone plate, bone bands, screws or any nonabsorbable foreign material to reduce a fracture but resorted to skeletal traction. He preferred the use of a Steiman pin or Ferguson tongs or some similar device to secure skeletal traction. His paper was very forceful and the end results of his past experiences were quite commendable.

The banquet on Monday evening at the Cosmoplitan Hotel was well attended, over 250 members and guests were seated. The after-dinner speech was given by the Hon. George Steele. He congratulated the profession and the college for upholding a standard of high ideals and unselfish service to all peoples.

Dr. Crowell then showed several interesting movie films, the first one showing the fertilization and development of a rabbit's ovum of 172 hours' duration and secondly illustrating the development of a diaphragmatic hernia. He called attention to the belief that all diaphragm herniae are congenital in origin. Another reel showed the use of the radio electric cutting and coagulating knife and its application to modern surgery.

The public meeting held on Tuesday night at which Dr. Lewis McKinnie presided was well attended. An interesting talk was given by Professor Ochsner upon cancer. He emphasized the importance of early recognition of cancer in order to secure early operative treatment. He urged the public to have yearly routine physical examinations by their physicians as a preventive measure in the fight to reduce cancer deaths.

At the annual meeting of the college and election of officers, Dr. Casper F. Hegner was elected chairman of the Colorado Section of the college for the oncoming year. M. C. J.

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE AND HOSPITALS

Very few physicians, and an equally small part of the interested laity of the state have a clear idea of the rules for admission of patients to the various institutions of this group. Definite laws were made that govern the conduct of these institutions, and the Board of Regents with the other administrative officers must abide by them.

The prime purpose of the Colorado General Hospital is to care for the sick citizens of the state who are financially unable to pay a private physician. No chronic or pulmonary tuberculosis cases, nor citizens of other states are admitted.

The institution is supported partially by fees obtained directly or indirectly from admitted patients.

(A) Patients who are unable to pay any of the costs, are required to present county papers properly filled out by the County Commissioners and by a regular licensed physician of the county in which they reside. The necessary papers may be obtained from the County Clerk, or from the above institutions direct. Fees in these cases are paid by the county concerned.

(B) Individuals financially unable to pay a private physician but who can pay part or all the hospital fees may be admitted upon written recommendation of any licensed regular physician of the state. Arrangements must be made with the Superintendent's office in advance. The per diem cost is $5.00 per day, but the physician who refers the case may recommend the fee to be charged, which may vary from $3.00 to $5.00. This entitles the patient to routine medical and surgical care. Cost price for x-ray examination, serums, special medication, operating room supplies, blood transfusions, orthopedic appliances, eye glasses and ambulance transportation will be made in addition to the per diem charge arranged.

Since the institution operates at cost these patients should bring sufficient funds to cover the estimated stay in the hospital.

Physicians who refer cases will receive a written report of the hospital findings.

Persons eligible for admission to the Colorado Psychopathic Hospital as patients are defined by law as "those persons suffering from a mental disease or disorder which can probably be remedied by observation, treatment and hospital care." Patients may be admitted either as voluntary or committed patients.

If a patient is to be committed a complaint in lunacy is filed with the local county court, a commission is appointed by the judge and the order committing him to the Psychopathic Hospital is entered.

If a patient is to be admitted as a voluntary case arrangements may be made upon the recommendation of his private physician; by the patient, or by the patient's relatives. If his resources permit his defraying his own expenses his petition for admission and the physician's certificate are filed in the hospital office. If he is unable to defray his full expenses he is admitted on the same type of voluntary petition but on a reduced rate which is dependent on the recommendations of his local county court. The per diem charge is the same as for the Colorado General Hospital.

In a case of emergency a patient may always be admitted directly to the hospital upon the petition of his private physician, and the necessary papers filed subsequently with the court.

Physicians have co-operated very well regarding notifying the hospital before a patient is sent in for admission. This should always be done, in that frequently the hospital is crowded beyond capacity.

* * *

Fifth Annual Clinic
March 26, 27, 28, 1930

A tentative program is given that the general outline may be known, and arrangements can be made to attend at least one day's sessions, if it is impossible to stay for all. A complete program will be available later.

March 26

Forenoon (a) General Surgery; Diagnostic and Operative Clinics
(b) Pediatric Clinics

Afternoon (a) Oto-Laryngology; Diagnostic and Operative Clinics
(b) Discussion of the newer laboratory methods

March 27

Forenoon (a) Obstetrics and Gynecology; Diagnostic and Operative Clinics
(b) Medicine Clinics

Afternoon (a) Neurology Clinics
(b) Opthalmology; Diagnostic and Operative Clinics

Evening: Address by Dr. R. C. Coffey, Portland, Ore.

March 28

Forenoon (a) Dermatology Clinics
(b) Urology; Diagnostic and Operative Clinics
(c) Orthopedics; Diagnostic and Operative Clinics

Afternoon (a) Psychiatry Clinics
(b) Special Topics.

E. R. MUGRAGE.

Obituary

Dr. Carroll Everett Edson

(From the minutes of the Medical Society of the City and County of Denver)

The Medical Society of the City and County of Denver, having sustained great loss and grief in the death of its member, Doctor Carroll Everett Edson, wishes to honor his memory by causing this memorial to be spread upon its records.

Born of medical forbears, reared in an atmosphere of medical practice at its finest, he was already, at his graduation at Harvard, A.B., 1888, and A.M. and M.D., 1892, marked for a brilliant future. Two years of intensive work in his interneship at the Boston City Hospital and in many corollary interests brought to light an active tuberculosis with which he came to Colorado in 1894. With health restored, he began active practice in Denver, soon came to leave the impress of his sound training and high ideals upon the medical thought of Colorado; and, long before his untimely death, had taken his place as one of the outstand-

ing clinicians, not only of the state, but nationally.

He was professor of therapeutics at the University of Denver School of Medicine from 1897 to 1906; was professor of the theory and practice of medicine at the University of Colorado School of Medicine from 1906 to 1910; and held membership in the American Medical Association, the Colorado State Medical Society, the Medical Society of the City and County of Denver, serving as its president in 1914, the American Climatological and Clinical Association, of which he was president in 1921, the American Meteorological Association and the Colorado Scientific Society. He was a member of Phi Beta Kappa. The flame of his patriotism burned high. He served as acting assistant surgeon during the Spanish-American War, and, denied active service during the World War by physical disability, he served with distinction as a member of the district board, selective service, during 1917 and 1918. He was also a member of the Associated Harvard Clubs, the Rocky Mountain Harvard Club, the University Club and the Mile High Club, in the activities of all bearing a useful and important part. Besides a translation from the French of Javal's "On Becoming Blind," he was the author of many important papers on medical and climatological subjects, and was much sought as a speaker on scientific and other occasions.

Just prior to his death, he had been invited to deliver the Shattuck lecture before the Massachusetts Medical Society,—a signal honor; and had chosen as his theme the therapeutic influence of climate, a subject in which his intense interest and wide study made him pre-eminent.

As a teacher, he impressed high ethical standards and sound thinking as well as medical knowledge upon many classes of students. As physician, he brought not only depth of medical wisdom and experience, but care for details, sound counsel and attentive interest in the problem of the individual patient, and knew, moreover, that all ills are not those of the body, and that a flash of humor or a bit of homely philosophy may, not seldom, be more potent than many drugs. As a consultant, his sound training, wide reading and experience, his grasp of fundamentals and clarity of thought, brought help to many in difficult problems.

Wherefore, be it resolved that this memorial be spread upon the records of this Society, and that copies of it be sent to his immediate relatives.

EDWARD WELLES COLLINS,
N. A. THOMPSON,
CHARLES N. MEADER,
Chairman.

Dr. John Harvey Bush

Dr. John Harvey Bush, member of the Boulder County Medical Society, died Feb. 4 in Des Moines, Iowa, following an illness of six months. Dr. Bush was born in Charleston, Ill., in 1870. He was graduated from the University of Illinois College of Medicine in 1899. He moved to Colorado in 1910 and established his practice in Sterling. Several years ago he moved to Boulder and became city physician. He held that position until last summer when he resigned because of his ill health.

He is survived by his widow, three daughters, and a son; Mrs. Ralph Shuey of Des Moines, Mrs. Harold Norman of Chicago, Mrs. Lawson Eggerton of Boulder and David Bush of Boulder.

WOMAN'S AUXILIARY

(Editor's Note—The Woman's Auxiliary of the American Medical Association, eager to have its Health Program understood by the entire profession, has submitted the following resume to Colorado Medicine. The program has been approved by the American Medical Association's Advisory Board designated to pass upon Auxiliary activities.)

* * *

Official Health Program of the Woman's Auxiliary of the American Medical Association

I. PUBLIC HYGIENE

Fundamentals upon which Auxiliary work for improvement of public hygiene should be based:

(1) Recognition of the fact that public health work is a highly technical job, requiring scientific, technically trained workers. That health work undertaken by lay women with no knowledge of the public health problem as a whole is necessarily fragmentary and ineffective.

(2) Recognition of the fact that every state, county and city is entitled to a scientific full-time health department (organized not to treat the sick, but to prevent disease and promote health), adequately financed, free from political domination, and providing continuity of service to a trained personnel so long as work is efficient.

(3) Recognition of the fact that the first and most fundamental job for lay organizations like the Auxiliary is to secure such scientific full-time health departments and adequate health protection, in their state, their county, their city or town.

(4) Recognition of the fact that where efficient, full-time, scientific health departments do not exist (and only about 10 per cent of the rural districts of the United States have anything approaching adequate health protection), health activities must be initiated and carried on by volunteer unofficial agencies; but that all such work should be so planned and administered as to serve as stepping-stones toward the full-time official health department, and that when the full-time official health department, with workers trained for public health work, has become an accomplished fact, lay organizations should support and co-operate with the official workers and should be willing to take orders from them.

(5) Recognition of the fact that no health department, state, county or city, can do effective work without intelligent co-operation of the public; that such public co-operation depends upon wide-spread health education; that lay organizations can do this educational work, and are needed for it; and that the Auxiliary can be one of the most valuable tools for an official health department to use in this work, because it can by its education of the public concerning the official health department's work and needs, be the means of gradually eliminating or preventing political interference with an efficiently working department, and thus insure to it uninterrupted public service.

Most volunteer agencies do not yet realize the wastefulness of their individualistic efforts. One of the first things the Auxiliary should do is to work for a change of attitude in other volunteer women's organizations.

Health officials know that it is not always the work which makes the greatest emotional appeal to the public which most needs to be done. Unfortunately most women do not know this. This

is something the doctors' wives might well undertake to teach other women.

The National Auxiliary recommends, therefore, that each State Auxiliary undertake, under the direction and with the help of the Public Health Committee of the State Medical Association and of its Advisory Council a study first of all of the fundamental principles of health promotion and disease prevention; second, of the set-up considered essential by public health experts for an effective state health department, of qualifications of personnel, adequate budget, and the like; and third, of the state health conditions; that it devise means of acquainting all the state board members with the result, and that recommendations for educational work by the county Auxiliaries be based upon the conditions found.

In states where all is well and where time has developed good official health machinery and good health conditions, general knowledge of the fact will tend to prevent interruption of the excellent work, and will be a source of satisfaction to the women of the state.

In those states where there is much yet to be done, this investigation will indicate what sort of work needs doing first. For example:

(a) In those states which are not in the Birth Registration Area, the Auxiliaries would, without doubt, wish to tackle, as their first job, the 90 per cent birth registration problem.

(b) In those states in which the state health department believes the "County Health Unit" to be the solution of the rural health problem, the county Auxiliaries should be encouraged to take as their chief work such persistent and widespread education of the public as will gradually create a general demand for the full-time county health department.

(c) In those states where the rural health work is directly done "long distance" by the state health department, the county Auxiliaries, if willing to work, and work under the directions of the state health department, can carry on intensive local health education work which would be impossible for the state department without intelligent local co-operation.

To those Auxiliaries which agree with these ideas the committee recommends the following outline of study:

(1) Vital Statisites. Their value.

Compare the vital statistics of the state with those of other states.

Compare the vital statistics of the different counties of the state.

Compare the vital statistics of the cities with other cities in the state, and in the United States.

(2) The State Health Department; its organization; and program:

(a) For general state work.

(b) For co-operating with the counties in improving county health conditions.

(3) The value of the Public Health Nurse.

(4) The County Health Unit as a possible solution of the rural health problem.

Community-wide Conditions Which Affect Health.

(5) Milk:

Milk standards, why necessary, what milk standards your community needs. How are these needs being met?

(6) Housing:

Your community housing laws.

Housing conditions as they have developed under these laws and as they affect health.

Improvements needed.

(7) General Sanitation and its relation to the death and morbidity rates:

Sewage disposal.

Water.

Garbage.

Flies.

Dust and street cleaning, etc.

II. PERSONAL HYGIENE:

The improvement of personal hygiene in any community is almost entirely a matter of education. Here again the Auxiliary members must first educate themselves before they can take a safe part in educating the public. The committee therefore recommends that the Auxiliary study programs shall include such subjects as:

Health Promotion:

Prenatal care.

Child Welfare—infant and pre-school hygiene:

School hygiene.

Mental hygiene.

Social hygiene.

The advantage to the public of general compliance with health regulations.

The periodic health examination.

Control of communicable diseases.

The entire program should close with a survey of all the private agencies doing health work in the community, and a discussion of the possibility and desirability of centering the direction of all such work in a full-time, scientific health department, under which the private agencies, while still maintaining their identity, would work in complete co-operation.

San Juan Basin Unit

The San Juan Basin Unit of the Woman's Auxiliary to the Colorado State Medical Society held its regular quarterly meeting in January. In spite of cold, stormy weather one member traveled a distance of sixty-five miles by auto to attend the meeting, another came over fifty miles and a third about twenty-five miles. The members of the Auxiliary were the guests of Mrs. R. L. Downing and Mrs. B. F. Walters. Aside from the business of electing officers the meeting was largely social. The following officers were re-elected to serve the coming year: Mrs. C. S. Smith, president; Mrs. B. F. Walters, vice president; Mrs. J. C. Darling, secretary-treasurer.

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Denver

The Woman's Auxiliary of the Denver County Medical Society gave a successful benefit bridge party Monday, February 17, the proceeds of which were to go to their philanthropic fund. One hundred and fourteen tables were taken. The table prizes were donated by Mr. W. C. Woodcock. The hostesses were Mesdames Lorenz W. Frank, Maurice Rees, A. J. Markley, William C. Black, Arnold Minnig, J. G. Hutton, C. H. Morian, C. A. McLauthlin, C. G. Hickey, George Johnson, H. J. Corper, Charles W. Dorsey, Douglas Macomber, John S. Chase, W. E. Sunderland, H. B. Stein, George W. Miel, John G. Ryan, W. C. Woodcock, T. Mitchell Burns and G. P. Lingenfelter.

* * *

Weld County

The Weld County Auxiliary met with Mrs. Spaulding, Monday, February 5, spending a pleasant social evening. Several Greeley High School students gave a program of music and selections from Edna St. Vincent Millay. A short business meeting was held and it was suggested we report our Christmas tree success at the County Hospital to our state editor. Each member of the auxiliary was asked to provide gifts for one patient whose wants varied from a string of pearl beads to an ironing board. Dr. Mitchell of the local society acted as Santa Claus, giving the patients an unusual Christmas treat.

MRS. H. J. CORPER,
State Publicity Chairman.

WYOMING SECTION

President, C. W. Jeffrey, Rawlins — First Vice President, R. H. Sanders, Superior
President-Elect, E. L. Jewell, Shoshoni
Secretary, Earl Whedon, Sheridan — Treasurer, Evald Olson, Lovell
Delegate to the A. M. A., Geo. P. Johnston, Cheyenne — Alternate, J. H. Holland, Evanston
Councilors: C. Y. Beard, Cheyenne — H. L. Harvey, Casper — J. H. Goodnough, Rock Springs
Medical Defense Committee: Earl Whedon, Sheridan — Chester Harris, Basin — F. A. Mills, Powell

EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT

"HE WILL OUTGROW IT"

The above expression has been used in the past and we are afraid that some doctors use it today in talking to the parents of children with eyes that deviate or turn out of line.

We believe that this advice is honestly given but it is a most unfortunate expression on the part of an honest family physician.

Little children are first seen by the general practitioner and at such times he should have very clearly in his mind this error, because it is on his advice that the parents are going to act.

To review this subject in such a manner that this error will not be repeated is the object of this editorial.

Binocular sight depends upon its development in the first few years of childhood, and if this faculty is not developed before the child is of school age it is rarely accomplished.

From five to six as a rule is the age limit given by most authors when great and permanent damage has been done to the turning eye. As a rule in normal eyes the fusion sense is developed in the first year of life and gradually improves up to the time the child begins his school life.

When there is a defective eye this binocular habit may not develop and yet in a few cases this does occur even later in life, especially if assisted by proper glasses.

Infections in early childhood, shock to the nervous system, and abnormalities of heredity and errors of refraction are the great hindering causes which prevent the use of the two eyes together, in other words, binocular fusion.

Another common error honestly made by the average family doctor is that it is dangerous for little children to wear glasses. This is a most unfortunate mistake. On the other hand, many little eyes would be saved by wearing glasses. Scissor points and other sharp instruments could not injure eyes thus protected and, as has been shown by several writers, even adults are safer with glasses than without them.

Children of one or two years of age can be fitted by the shadow test and suitable glasses can be adjusted and worn by these little ones, and although they cannot assist the oculist as they cannot understand even the simplest of charts the correct glasses can be fitted with the use of atropin and the retinoscope.

To assist in the development of the poor eye there are exercises as covering the glass over the good eye or keeping it under the influence of atropin. This compels the use and assists in the development of the weak eye.

And lastly do not consider or recommend any muscle operation until the glasses and exercises have been tried for several years,—yes, several years.

Some very surprising results have followed the removal of infected tonsils and adenoids. We have seen wonderful improvement following this and recommend their removal if they show a dark or blue discoloration of the pillars, or other evidence of infection.

No, "He will not outgrow it" unaided. It is up to you to give this aid. E. W.

DOG TAXES ARE DUE APRIL 1ST

You all remember how you felt when such a notice was printed in the papers when you were a boy and had a pet dog. How you tried to keep "Shep" out of sight and were in deadly fear that the dog catcher would get him before you could persuade Dad to give you a dollar to save the life of your pal, your pet pup or old "Shep" or "Rover."

Many a poor youngster has had his heart broken by the dog catcher in the loss of a scrub pup that meant everything in the world to him so far as a pal and companion could mean.

Last year our all wise State Legislature passed a dog tax, on doctors. This action was engineered through and signed.

Certainly the members of the medical profession were not informed of this undesirable and annoying tax and it was rushed through the legislature and signed by the governor. He would not for one moment favor such a law applying to his own profession, that of a civil engineer. No, but the doctors must pay one dollar a year to be granted a renewal of their license after paying fifty dollars for them, to practice medicine; like a cigar store to sell cigarettes. Oh, ye gods! why did not his all wise bunch see the point and remember their childhood days and make the tax a little more by making the rate five dollars for females as it applies in the case of the dogs? They certainly overlooked a great point in this matter. Perhaps they considered our lady doctors would be less amenable to discipline, but of all the diabolical taxes this is certainly the bunk.

How do you think the attorneys would swallow such a penny wise and pound foolish policy? They would not stand for it one moment. No you can't put a pup tax on lawyers, or bankers, judges or even the meek tillers of the soil who generally have to stand anything, but the fool doctors stand for such a graft. And why the tax? Answer: to keep the records in the office of the State Board of Medical Examiners up-to-date. They are so valuable for the insurance companies.

Here we are a little poorly populated state with a county health officer in each county who knows at once when a new doctor arrives. Our state health officer is also the secretary of the State Board of Medical Examiners. He can and ought to get all this information from the county health officers without a dog tax of one dollar on every doctor in the state.

It is not the amount of the tax but the prineiple of the unfair thing that gets under our skins. In the great centers of population such a measure might be needed but out in Wyoming it's the bunk. Everyone will admit that the State Board of Medical Examiners is not worked to death and the secretary has plenty of time to look after unregistered doctors in our state.

Pay your doctor dog tax April 1st and next fall vote for the spine adjusters for the legislature and quack loving officers.

Surely a list ought to be made out by each county society and those members of the legislature who vote for the irregulars ought to be taken off our visiting lists and we refuse to doctor them and let them have their spines and pocketbooks adjusted. That's the way to treat members of the legislature who work against the regular physicians.

If, however, you prefer to vote for these friends of the cults you can call yourselves what you want to, but we know a name that beats the famous Senator Moses' slogan, "Sons of Wild Jack Asses," that would apply to you.

It, too, applies to the offspring of female dogs, but it might not look good in print. All of this goes to show what we lack in business training. We spent all our efforts to try to keep people well and cure the sick and forget to look out for our own pocketbooks and our rights. Perhaps we will wake up some day, who knows? Then we will put a stiff tax on the politicians. That ought to make everybody happy. E. W.

SYMPTOMS OF DIAPHRAGMATIC HERNIA OF THE STOMACH*

EARL WHEDON, M.D.
SHERIDAN, WYOMING

The object in presenting this subject is to bring out some interesting points in the symptomatology as noticed in the literature and a few original observations covering some symptoms which the writer has experienced but which he realizes will not be found in all cases of diaphragmatic hernia of the stomach.

The reason for there being such a variety of symptoms noted by different writers (no two of them list exactly the same symptoms) is: first, the region of the hernia, and second, the extent of the hernia and organs involved. Possibly a short review of the early cases reported will be of interest. In 1610 Ambrose Paré reported two cases of traumatic hernia and eight-eight years later Riverius reported the first of congenital origin. It was in 1888 that the first operation was successfully done by Naumann in which the hernial contents did not prolapse through the thoracic wall.

According to Arnsparger diaphragmatic hernia had not been recognized in life more than ten times before 1908.

In other words, when most of us went to medical college such conditions were not considered and so we were never given any lectures on this subject.

In 1915 Kienbacck reviewing the German literature could only find three cases of diaphragmatic hernia which had been diagnosed in life and confirmed by necropsy.

In the Bellevue Hospital, New York, MacMillan found but three cases in 15,000 roentgenologic examinations at the U. S. Army General Hospital No. 1. Carman in 1924 gave the ratio at the Mayo Clinic as 1 to 18,000. Nothing shows the rapid strides made by x-ray examinations as clearly as the increase in cases discovered in the last few years. Improvement was due largely by the use of barium in outlining the true conditions and also to the finer technique employed.

Stuart W. Harrington of the Mayo Clinic read a paper May 10, 1927, before the American Association for Thoracic Surgery in which he stated that since 1908, fifty-one cases of diaphragmatic hernia have been diagnosed at the Mayo Clinic.

In twenty-seven of those cases the complaint was due to a hernia of abdominal viscera. Seventeen were diagnosed by means of the x-ray showing a hernia of the cardiac end of the stomach passing through the esophageal opening.

All authors agree that this is the most common condition found, and of course it is in almost all cases into the left half of the chest, the liver acting as a protection to the right side.

No time will be consumed in discussing the embryonic causes leading up to the weakness of the diaphragm and under this title no cases, where other organs than the stomach act as the organ offending agent will be considered.

As a matter of fact, organs such as the stomach, colon, small intestine, liver, spleen, omentum have been found in the region above the diaphragm. Indeed Lacher in the American Journal of Roentgenology for 1926, states that "every abdominal organ except the genitalia, bladder and rectum has been found in the thorax at least once."

The first abdominal viscus to enter the hernial sac is usually the stomach and for this reason, with the aid of flouroscopy, these true hernias ought to be discovered in an early stage.

Until recently these small hernias have not been discovered, usually the hernial sac contains a large part of the stomach, colon or small bowel. Undoubtedly there are a great many more of these hernias existing and undiagnosed among our patients than we think of and diagnose.

It is in hopes that other cases may be diagnosed that I present this review of the liter-

*This paper was read before the joint meeting of the Sheridan County Medical Society and the Staff of the U. S. Veterans Bureau No. 86, Feb. 3, 1930.

ature, early history and present the symptoms as given by several authors and closing with those experienced by the author.

Cases often present only slight objective symptoms and go undiagnosed as digestive disturbances unless given the most careful x-ray examinations by someone who understands the proper technique.

Surely the flouroscopic examination is the most important if properly done with an opaque solution sueh as barium.

Simply drinking this solution and standing in the erect position will fail to register the true condition via the flouroscope. However, if the patient is examined while lying on his back, then on his right side, and lastly with the abdomen next to the plate or flouroseope and after taking a deep breath, holding the same and straining with the abdominal muscles the part of the stomaeh will further enter the thorax.

The liver drops lower and thus the esophageal opening into the stomach is more clearly seen.

Slowly rolling the patient from the back position to that of the left side up and then partly on the abdomen assists in the correct diagnosis.

Too much credit cannot be given to the proper x-ray examinaion. Often an egg or orange shaped shadow above the diaphragm is seen which can be differentiated from a dilation of the esophagus by the turning of the patient and thus the shadow will be to one side of the esophagus and not a pouching of the esophagus as is seen in esophageal obstruction due to caneer or new growths.

Dr. K. G. Graces in 1927 in a paper read before the Southwestern Virginia Medical Society gives the symptoms as follows: pain, nausea, vomiting, distention, constipation, dyspnea, dysphagia, abnormal sensation in the chest, any of the above or most of them being often present, but not essential to the diagnosis: One said the stomach felt lifted up, another that he felt as if the lung rubbed on a bag of air, on inspiration a rumbling noise in the chest as high as the nipple line was mentioned by another.

Dr. L. P. Morrison of Boston gives in his paper read at the A. M. A. meeting in Chicago in 1924 the following points: On symptoms reported by patients "the most constant symptom was pain or distress just above the ensiform cartilage, not epigastric, continuous hunger, especially the first thing in the morning, dysphagia, often early in the morning nausea; night awakenings with abdominal distress, vomiting foamy acid food residue; pain extending to the left shoulder at times. The pain resembles a mild attack of cholecystitis starting in front and radiating to the back, more often to the left shoulder; the stomaeh distress is frequently at night; there is a lump under the sternum and the patient vomits undigested food easily.

Dr. John Dryer of Aurora, Illinois, called attention to the following symptoms: "epigastrie distress, acidity, regurgitation and vomiting, many complain of a feeling of fullness in the chest after a full meal or when they retire, vomiting usually alleviates the discomfort, many are relieved by the ingestion of alkalies, made worse by food, an important aid in differentiation from ulcers; likewise, analysis of gastric contents reveals a normal acidity. A severe strain or sudden exertion, or a hasty or copious meal may precipitate an attack of epigastric or thoraeic pain. Dyspnea is a prominent feature and is often associated with thoracic pain.

Dr. John Homer Woolsey of San Franciseo gives in the Journal of the A. M. A., December 31, 1927, the following symptoms: "The most common complaint is epigastric cramp-like pain that oceurs immediately after meals, non-radiating as a rule, but occasionally radiating to the left acromial region, relieved by belching, vomiting or change of position; increased by rapid eating, by ingestion of eoarse, solid food, or by exereise, and occurring often in attacks that last from one hour to a period of days or weeks, followed by a period of more or less freedom from all distress.

The other main basic complaint, increased interathoracic pressure, presents a pieture of prolonged unconsciousness with cyanosis at the outset in the traumatic type; cyanosis

with change of position as in the congenital type; paroxysms of smothering without apparent cause but frequently associated with change of position, with eating or with exercise, dyspnea, dysphagia and occasionally a consciousness of a forced cardiac beating."

Drs. Henry K. Pancoast and Russell S. Boles of Philadelphia reported in the Archives of Internal Medicine, November, 1926, the following as the most common symptoms: "Symptoms may be entirely absent. If present, as is usually the case, they may be respiratory or gastric in nature. More often they are gastric and suggest disease of the gastro-intestinal tract. As a rule these patients are thought to have peptic ulcer, cholecystitis or carcinoma.

If the symptoms are mainly respiratory, cardiovascular disease is usually suspected. Probably the most constant, certainly the most suggestive, symptom present is pain, often of a colicky nature, localized just above the ensiform or in the epigastrium, which comes on gradually and more often when the patient is lying down, especially at night. This point emphasizes a none too well recognized fact, i. e., the importance of eliciting an exhaustive history. The pain may be so severe as to suggest biliary colic and is apt to radiate through to the back and around to the shoulders. Tenderness is noted in the right quadrant, or less frequently in the epigastrium. Regurgitation especially when in the supine position frequently occurs, probably as a result of the patent cardio-esophageal opening that is usually found in the esophageal hernia. At times vomiting, especially in the early morning, is complained of and may give temporary relief. The appetite may be unimpaired and dysphagia is relatively infrequent. Excessive flatulence and belching are commonly present two or three hours after meals. Hematemesis, which further encourages the diagnosis of ulcer, may occur and may be due to the inflammation of that part of the stomach wall that is involved in the opening. Such cardiorespiratory symptoms as dyspnea and palpitation, which at times may occasion no little anxiety, are less frequently present. They are more apt to be noted in elderly people and especially those with myocardiac disease, cardiac hypertrophy and aortitis.

Dr. Stuart W. Harrington, of the Mayo Clinic in a paper read before the American Association for Thoracic Surgery in May, 1927, gives the following as symptoms: "It is apparent that the symptoms will be varied and inconstant. In general they may be divided into thoracic symptoms, which are probably least noticed, and abdominal symptoms, which are the most constant. The thoracic symptoms are caused by encroachment on the pleural space with impairment of respiration and circulation. The most common of these are dyspnea, cyanosis, palpitation of the heart, pain and sense of fullness in the chest. These are present in varying degrees and combinations, depending on the site and degree of the encroachment on the pleural cavity, or they may not be present at all.

The abdominal symptoms are caused by incarceration of the abdominal viscera in the hernial opening; this causes disturbance of the function of the organs involved, varying from slight irritation to strangulation or obstruction. The most constant symptom in the surgical cases at the Mayo Clinic was epigastric pain; it was noted in practically all cases. In four cases it radiated to the thorax anteriorly, in three cases to the back, and in two cases to the left shoulder. The other symptoms in order of frequency were regurgitation of sour fluid or food, vomiting, gastric distress and distention with difficulty in belching of gas at times, distress immediately after eating, hemoptysis and melena.

The inconstancy of these symptoms is undoubtedly produced by the varying site of the hernial opening and the difference in the degree of functional adjustment of the thoracic and abdominal viscera. It is evident that diagnosis by means of the history alone may be difficult, however, such diagnosis is important and when possible, will obviate useless treatment, because of the vague symptoms simulating some thoracic

or abdominal disease, of which disease of the gallbladder and of the stomach are most common, operation may be advised. Dr. Carl A. Hedblom of Chicago in an article on Diaphragmatic Hernia in the Journal of the American Medical Association, September, 1925, states, "The symptoms in diaphragmatic hernia are due chiefly to mechanical interference with the function of the organs herniated in whole or in part, or to impairment of respiration and circulation. The variable hernia contents account in large measure for the wide range and variability of symptoms. (a) Mayo Clinic series: Twelve patients had symptoms referable to the abdomen alone and seven to both abdomen and chest. Of the abdominal symptoms, pain, vomiting and constipation were the most prominent. The pain in some was colicky in character. One patient crawled about the floor for relief. In two, the pain was brought on by eating. Hematemesis occurred in several and was the most marked symptom in two. Persistent belching occurred in four. Dysphagia was present in one. Practically the only symptom in one was obstinate constipation, relieved only by repeated enemas, which produced dypsnea. In two cases, pain referred to the left shoulder and dyspnea, were the most marked. Two patients described gurgling and rumbling sounds in the chest and one described a sensation as of the stomach being "lifted up." Two complained of palpitation following exertion and at times a feeling that they were "going to die." The thoracic symptoms may be relatively slight, as in one case in the clinic series in which half of the diaphragm was absent and the pleural cavity full of abdominal viscera. It seems noteworthy that the average duration of symptoms in the hernias of congenital origin was, for the most part, many years, while most of those in the other groups were of less than three years duration. Periodicity of symptoms, vomiting without nausea, melena, tetany, convulsions, dysphagia in taking liquids but not solids, and anemia were among the occasional symptoms noted. A few patients had practically no symptoms."

In a table given, covering the symptoms of 229 cases, cough is mentioned as occurring six times.

This reference to cough by Dr. Hedblom is the only one I have been able to find in the literature and in my own case this was and at times is quite troublesome. The character of this cough will be referred to later but I wish to give Dr. Hedblom credit for mentioning it in his table of symptoms, although he does not refer to it in the body of his article covering the symptoms.

Personal History. I am 58 years old, fairly well built and generally weigh about 220 pounds, but since the hernia occurred I have lost about twenty-five pounds and regained about ten pounds. Early history is not important. About two years ago I first noticed some difficulty in swallowing, especially when eating raw apples. Even though I thought I chewed the apple up finely enough, it would lodge in the lower part of the esophagus and I would only be able to force it into the stomach by taking a drink of water. I was awakened about that time one night by a severe pain in the cardiac region, which was of a stabbing or tearing nature. I felt my pulse and it was slow and regular although rather bounding. Cough developed and at times is quite annoying. It seems to be of a reflex nature and not accompanied by any expectoration, at the same time a rather sharp pain is present under the left shoulder blade. I had, following this severe pain, several months of comfort, but on making a trip to the ranch during which I rode several miles through the snow on horse back, all the symptoms returned. No vomiting has occurred in my case but belching seems very difficult at times and this, no doubt, is due to a valve-like action at the bend in the esophagus when the cardiac end of the stomach enters the thorax.

This condition seems to be more of a side pressure as that portion of the stomach passed up along the side of the esophagus through the esophageal opening. Since the sudden pain above referred to the opening must have enlarged as this difficulty in the

passing of food has not been noticed since that time.

Night disturbances are quite frequent and often in the early morning hours there occur pains and a dragging sensation in the epigastrium, but without any attendant feeling of fullness or distention.

A symptom, not mentioned in any of the literature available, and quite often occurring is a peculiar pain which comes on suddenly and is referred to the upper part of the esophagus reaching up to and including the larynx. Drinking some fluid seems to bring relief.

This pain is quite severe and efforts to vomit or belch gas do not diminish the pain, but drinking fluids does relieve the discomfort.

Position assumed in bed does make a difference. Reclining with the left side down causes the heart to beat with a more labored and forceful effort and a sense of fulness under the left ribs and epigastrium is noticed.

Relief is secured on turning the right side down and I find this position is required to secure sleep as a rule.

No constipation has occurred and no difficulty in swallowing has been experienced in the past year.

No blood has appeared during gastric examination nor are there signs of it in the stool.

Sudden strain, as heavy lifting, increases the discomfort, especially a sudden shortness of breath with more rapid and forceful action of the heart, accompanied by pain, referred to the left and posterior part of the chest in the region underlying that of the left scapula.

Again referring to the reflex cough, which is not accompanied by expectoration: this is not severe and resembles a cough like that produced by a slight irritation in the throat and is not harsh and rasping but quite constant when the herniated section is distended by food or gas.

Another symptom not often mentioned in the literature is that of displacement of my heart to the left. In most cases the heart is pushed to the right. In my case the apex beat is to the left of the usual position. This is one of the outstanding symptoms in my own case and by some examiners has been taken for a hypertrophy of the heart; whereas, on carefully outlining the region of cardiac dullness is is of normal size but displaced to the left in place of to the right as generally reported in the literature of diaphragmatic hernias of the stomach.

Another symptom not mentioned in any of the literature that I can find, is an irregular breathing during sleep. My wife has noticed this peculiar breathing for a year or two.

I cannot say positively that this occurs only when the left side is down, but I believe this to be the case. She describes the irregularity as follows: "At times you seem to stop breathing when asleep. I have observed this many times. After a short space of time your limbs seem to twitch and then you take a deep breath followed by several forceful inspirations which in turn give place to normal breathing. This continues for some time when you seem to again stop breathing as before. It seems a long time when I have been watching you hold your breath, but time is hard to measure under these conditions." Sometimes she arouses me and on a change of position breathing becomes normal.

The phrenic nerve (Internal Respiratory of Bell) arises from the third, fourth and fifth branches of the cervical plexus. Within the chest it descends nearly vertically in front of the root of the lung and by the side of the pericardium between it and the mediastinal portion of the pleura, to the diaphragm where it divides into branches, which separately pierce that muscle and are distributed to its under surface.

Perhaps the pressure of the herniated part of the stomach on this nerve causes this irregular breathing.

As you remember the tenth or pneumogastric nerve divides and re-unites along the espophagus, and also supplies the greater and lesser curvature of the stomach and pressure on this nerve by the hernia may account for some stomach disturbances, as well as the irregular coughing.

Dean C. W. M. Poynter, professor of anatomy of the University of Nebraska, gives the following explanation in my case. "Now in regard to the cough. When we attempt to consider analytically the divided function of the phrenic nerve and pneumogastric nerve it carries us into the sympathetic and autonomic systems. My laboratory has been working for a number of years attempting to unravel the connections of the ninth, tenth and eleventh complex in mammals, an almost endless job. It is very positively known that both the tenth and phrenic nerves carry sympathetic fibers, and it seems reasonably certain that the irritation of either may be responsible for cough reflex. You no doubt remember the cough which will occur from irritation of Arnold's nerve when it is irritated.

"The sensory distribution, visceral in character, when we leave the region of the larynx, is by no means clearly defined, so that I would be unable to account for the pain symptoms referred to except to suggest that possibly your back pain would suggest a segmental position of the digestive tube in its irritation corresponding to the segments of the sixth, seventh, eighth thoracic which could correspond to the region of the cardiac end of the stomach.

"To sum up, either the phrenic or the pneumogastric might be reasonably considered as a source of the cough, my own guess being in favor of the pneumogastric as the major seat of irritation. As to the Cheyne Stokes respiration, I am enitrely unable to carry out an analysis."

Heart sounds are regular and blood pressure normal for my age. Wassermanns have been always negative and the gastric analysis normal, duodenal cap regular but the stomach tends to empty itself a little faster than the average.

To Dr. J. H. Bridenbaugh of Billings is due the credit of diagnosing the hernia of the stomach in my case. On April 2, 1929, he examined me and took several pictures which were the first to show the true hernia. On swallowing the barium solution he noted with the flouroscope an enlargement at the lower end of the esophagus which shows that portion of the stomach above the diaphragm about the size of an average orange.

All pictures which have been taken since, which show the hernia, give it about the same size. In other words, the hernia does not show much variation in size and yet when there is more gas in the stomach or after exertion we feel that there must be an increase in the size of the herniated part to account for the increased shortness of breath and added cardiac labor.

The second picture taken by Miss B. A. Malokowsky, technician of the Sheridan County Memorial Hospital, August, 1929, is equally clear and definite. When attending the meeting of the American Medical Association in Portland, Oregon, in July, 1929, Dr. R. C. Coffey had several pictures taken by his x-ray department and to our surprise the stomach had returned to its normal position below the diaphragm. However, the condition returned and in November a series of x-rays taken at the direction of Dr. Carl Hedblom of Chicago in St. Luke's Hospital, Chicago, showed the condition about the same as in those taken in Billings and Sheridan.

Treatment will not be discussed in this paper, but if the symptoms given and the importance of correct x-ray examination has been stressed, I feel that the subject may be of value to the general practitioner and the surgeon in considering obscure conditions sometimes presented in thoracic and abdominal cases.

Since writing the above there appeared an article in the January 4th issue of the Journal of the American Medical Association entitled, "Hernia of the Stomach Through the Esophageal Orifice of the Diaphragm" by Max Ritvo, M.D., of Boston, that is so well written and the pictures are so similar to my own that I trust you all will read this, as had I known it was about to appear I should have delayed or perhaps not presented my paper at all.

COLORADO NEWS NOTES

BOULDER—Dr. F. R. Spencer recently addressed the Boulder Rotary Club, delivering an illustrated lecture on the use of x-ray in diagnosing sinus infections. Dr. Carbon Gillaspie presided at the meeting.

BOULDER—Dr. George Kellogg of Nampa, Idaho, recently visited his nephews, Dr. Walter K. Reed and Dr. Homer Reed in Boulder. Dr. Kellogg was on the program of the Western Division of the American College of Surgeons in Denver.

COLORADO SPRINGS—Dr. Charles O. Giese has inaugurated a series of lectures to the residents and patients of the Union Printers' Home on the prevention of tuberculosis.

DENVER—Dr. William D. Rothwell is visiting his brother, Dr. Herbert T. Rothwell, in the Hawaiian Islands. He is accompanied by his mother, Mrs. William J. Rothwell.

DENVER—Announcement has been made of the change of name of the Woman's Hospital. henceforth to be known as the Physicians and Surgeons Hospital. Dr. T. Mitchell Burns was elected president emeritus; Dr. George L. Monson, president; Dr. G. K. Olmsted, vice president; and Dr. Ray Lang, secretary of the staff at a meeting held February 6.

DENVER—Dr. J. W. Amesse was installed as president of the Denver Public Health Council at its February meeting. Dr. B. B. Jaffa is the new vice president and Miss Jessie I. Lummis was re-elected secretary-treasurer. Other members of the Executive Committee are Dr. Maurice H. Rees, Homer W. Anderson, Henry W. Toll and Mrs. Katheryn Schulken.

DENVER—Dr. Franklin G. Ebaugh addressed Denver Sunday School teachers on mental hygiene problems of childhood February 11 at the First Christian Church.

DENVER—G. L. Cousineau, charged with practicing medicine without a license, was held guilty by a jury in the Denver County Court February 6. He had been fined in justice court previously and had appealed to the county court.

DENVER—The annual report of Dr. S. R. McKelvey, secretary of the State Board of Health, has shown a decrease in the majority of reportable diseases. In 1929 only 379 diphtheria cases were reported as compared with 626 in 1928. Similar decreases were reported for most of the so-called children's diseases. The greatest increase shown was in smallpox, 895 cases being reported in 1929 as against 387 in 1928.

DENVER—The Porter Sanitarium and Hospital, a Seventh Day Adventist institution, was formally opened February 16. The sanitarium is named for Henry M. Porter, who donated the land at South Downing street and East Yale avenue where the building is located. The hospital has one hundred beds. Dr. Otis Hudson, formerly director of a similar sanitarium at Orlando, Florida, has been named superintendent.

DENVER—The Louis Heineman building of the National Jewish Hospital was formally dedicated February 16. The Heineman building is designed to house all the tuberculous children who come to the institution. It was designed entirely on specifications of a medcal advisory board.

FORT COLLINS—Dr. E. L. Morrill, who recently underwent an operation at St. Joseph's Hospital, Denver, is reported convalescing at his home.

FOWLER—A campaign to vaccinate all pupils of the Fowler schools against smallpox has been undertaken by the school authorities. Dr. G. A. Ashbaugh has charge of the vaccination.

GREELEY—Dr. J. W. Lehan is convalescing from an operation for acute appendicitis.

GUNNISON—Dr. J. P. McDonough has been elected president of the Gunnison Chamber of Commerce for 1930.

PUEBLO—Members of the Pueblo County Medical Society were guests of Dr. W. Frederic Singer at a dinner January 28 given in the Rathskeller dining room of Dr. Singer's home. Drs. C. T. Burnett and Franklin G. Ebaugh of Denver delivered a symposium on syphilis as the evening program with Dr. William Senger presiding.

SILVERTON—Dr. S. A. Bryan has re-established his home and practice in Silverton after having lived several years in Crowley and Walsenburg.

WYOMING NEWS NOTES

Sheridan County

On January 14 in St. Paul, Minneapolis, Miss Ella Veldey, who, for the past two years, has been superintendent of nurses of the Sheridan County Medical Hospital, was married to Dr. C. E. Stevenson, one of the prominent physicians and surgeons of Sheridan, Wyoming. The wedding was a very quiet affair, attended only by intimate friends and relatives and, after a short honeymoon, they are now located at 648 South Main Street.

Casper, Wyoming

Dr. M. J. Nolan is now at the Mayo Clinic from his third operation for peptic ulcers. Last reports were that he was slowly gaining.

Dr. Lawrence Barrett, who has been with the Augustana Hospital for the past two years, has located in Casper.

Dr. W. O. McDermott has recently left for a year's post graduate study in Europe.

Dr. H. R. Lathrop, who has been suffering for the last two or three months with an infected hand, has fully recovered and has resumed his practice.

Dr. M. C. Keith has been appointed County Physician.

Dr. N. C. Geis has been appointed Police Surgeon for the ensuing term.

Dr. T. J. Raich has been sick for the last couple of months and is now confined to the Fitzsimons General Hospital at Denver.

Sheridan, Wyoming

Dr. W. J. Knebel has just returned to Buffalo after an absence of about two months in the Sheridan County Hospital, where he has been suffering with a badly infected hand.

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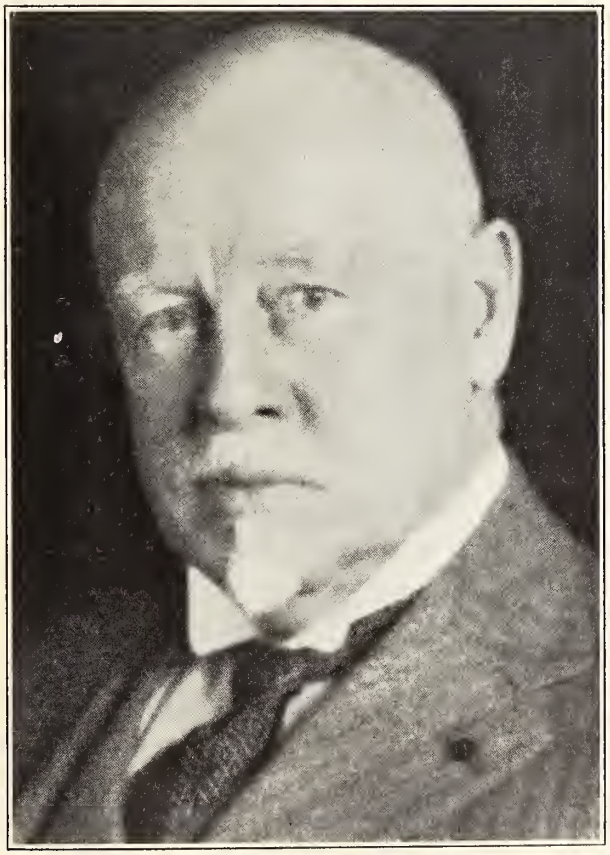
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EDITORIAL NOTES AND COMMENT

A NOTABLE BIRTHDAY

It is the happy fashion of our times to celebrate our great citizens while they are still in our midst. On the eighth of this month the whole medical world will join with us in extending to William H. Welch hearty congratulations with the expression of our sincere affection and esteem. It is something to have lived for eighty years a life brim full of health and activity. It is more to have crowded those years with scientific discovery and great humanitarian achievement. Simultaneous ceremonies in honor of Dr. Welch are to be held in London, Paris, Berlin, Leipzig, Tokio and Pekin as well as in several cities in the United States. The focal point of these celebrations will be the Memorial Continental Hall at Washington, D. C., where speeches are to be delivered by President Hoover, Dr. Livingston Farrand and others. These proceedings, beginning at noon, Eastern standard time, will be broadcast across the country by the National Broadcasting Company. It is expected that the program will also be broadcast by short wave and that it may be heard by those participating in the simultaneous ceremonies in foreign countries.



William H. Welch, Aged 80, April 8, 1930

A unique feature of the celebration has been arranged through the co-operation of Alfred Hutty, the etcher, of Charleston, South Carolina, who was commissioned to make a dry-point portrait of Dr. Welch. The first print from the plate will be given to Dr. Welch at the Washington ceremonies, and there will be simultaneous presentation of other prints from the same etching to more than forty institutions in this country and abroad, with which Dr. Welch has been connected as student, teacher, or adviser.

Old pupils of Dr. Welch now living in Colorado, who wish to add their personal greetings on this occasion are requested to communicate immediately with the editor of this journal.

HEALTH INSURANCE

It is generally believed by American doctors that the health insurance schemes of Europe are operated by very unwilling physicians at an expense to the public which approaches an economic disaster. This impression is fostered by visits from the more prosperous English physicians, most of whom have had no personal experience of insurance practice and who can afford to retain their original prejudices against it, as well as by carefully selected quotations from the conservative press of Europe which tend to discredit the schemes in operation. Last year, for example, one of our contemporaries[1] published a review of health insurance in France translated from the conservative, not to say reactionary, L'Ami du Peuple. We are fortunate in being able to offer to readers of Colorado Medicine an account of health insurance in Europe by one whose authority in this field is quite outstanding. Dr. René Sand was born in Brussels in the year 1877, received his medical education in the universities of Brussels, Vienna, and Berlin, and was before the war a member of the faculty of the Medical School of Brussels University. He founded the Belgian Association of Sociological Medicine and has been Secretary of the Belgian Medical Association. In April, 1918, he was sent to the United States on an official mission by the Belgian government, the result of which is incorporated in his valuable monograph on industrial medicine in this country.[2] He has visited America on many occasions since then, the last occasion being as recently as last year, when he presided over the First International Hospital Congress at Atlantic City.

Dr. Sand envisions medical insurance as part of a general scheme of social insurance against accident, sickness, old age, and unemployment, and this, from the European point of view, is unquestionably its proper setting. No attempt is made or implied in his article to suggest a policy for the United States. Nevertheless, we have our problems, and many who have thought about them have come to the conclusion that some form of insurance will eventually have to be adopted. The authors of that excellent piece of sociological research entitled "Middletown"[3] have shown how the function of mutual aid in sickness and in economic disaster has gradually been abandoned by the church. Middletown inaugurated its community chest in 1925. "There was," say the writers, "the minimum of Christian caritas about it." The big business men were tired of being pestered every few weeks to help some new drive. They organized "shock troops," meetings were held to "whoop up" these workers, and it was plainly given to understand that civic slackers would not be tolerated. The city went over the top. Yet, Middletown and its community chest has not entirely solved the problem of medical service. "One observes a situation of some fifty local doctors spending much time sitting in their offices waiting for patients to come in and proffer the requisite money for treatment * * * while at the same time thirty-eight thousand people, most of whom have some physical defect, great or small, needing correction, will in only a relatively few cases have these defects treated." We are reminded of the complaint of a Denver physician, which we published last month, of the difficulty of getting tonsilectomy performed for indigent children.

Of course, if the general population would exercise foresight, the emergency which now so often occurs of needing medical help when there is no balance in the bank to pay for it need occur but very seldom. But, as Dr.

[1]Bigelow, L. L.; Social Insurance Abroad and the Attitude of the French Medical Profession. Ohio State Med. J. 25:120 (Feb.), 1929.

[2]Sand, René; Organisation Industrielle, Médicine Sociale et Education Civique, Librairie Lamertin, Bruxelles, 1920.

[3]Lynd, Robert S., and Helen Merrell; Middletown; Harcourt, Brace and Company, New York, 1929.

Follansbee[4] points out, though the choice between a vacuum cleaner and a physician should be plain enough, the vacuum cleaner is supported by a high-powered salesman and the need for a physician is not even advertised. Dr. Wade Wright,[5] in the same journal, sees a solution in the rapid spread of group accident and health insurance by private and semi-private companies in recent years. Such insurance, not including workmen's compensation insurance, now covers not far from two million lives. It is true that the benefits which it produces are not at present sufficient to meet the need. In Dr. Wade Wright's opinion,[5] this is because the benefit payments do not cease at the time when the needs have been properly and adequately met. But this defect he believes might be overcome by closer co-operation between the public, the insurance company, and the certifying physician.

It is evident that there is no panacea for this problem. The great need at the present time is for research such as is being carried out by the Committee on the Cost of Medical Care and for an open-minded willingness to examine all the possible remedies which the results of that research may suggest.

PENDING LEGISLATION

Democracy in government has been rescued, many would say in the nick of time, by the development of a new technique: the technique of writing and resolutions. A special advantage of the newer methods lies in the fact that only the more intelligent citizens are aware of their significance and thus, for the present at least, the more intelligent are exercising a disproportionate influence in government. Readers of Colorado Medicine are doubtless amongst this number, and it therefore becomes our duty to point out some of the more important bills now before Congress.

Little need be said concerning the Porter bill (H. R. 9054) relating to the prescribing of narcotics. Many of the county societies have already made their wishes known to our legislators and others will find plenty of food for consideration in the editorial recently published in the Journal of the American Medical Association.[1] Of equal public importance are the Jones-Cooper bills, relating to federal aid for Maternity and Child Welfare. The Sheppard-Towner act was passed against the organised opposition of our profession, and functioned with very fair success through the doctors' generous help. Do we want a second edition, and, if so, which? Official reports on the expenditure of the Sheppard-Towner funds in this state are to be found in the reports of the Colorado Child Welfare Bureau on file in our medical library. The following estimate of the ex-chairman of the Committee on Social Medicine of our State Medical Association represents the considered view of one who has been in close touch with the actual administration of the act:

Dear Mrs. Mathews:

I understand that the Jones-Cooper bill is sponsored by President Hoover, and is intended to take the place of the Sheppard-Towner Bill. For the sake of Colorado and other western states, I sincerely hope that this bill may meet with the approval of Congress. I suppose it is difficult for the representatives from eastern states to conceive of the urgent need of such legislation for the promotion of health education in western states. Such wealthy states as Massachusetts, New York, Pennsylvania and Illinois have well organized bureaus of Child Hygiene, and are financially capable of carrying out any program of health education, aiming toward the reduction of infant and maternal mortality. However, less than a third of the United States will conduct a well organized Infant and Child Health program whether it be adequate or inadequate. Those who are familiar with the functioning of the Sheppard-Towner work in Colorado will doubtless want to sponsor this new bill. Since we have no Bureau of Child Hygiene in our State Board of Health, and since there is no prospect of adequate funds becoming available through the legislature for any sort of health education for the infant, preschool or school child, we must anticipate that if the Jones-Cooper Bill is defeated, Colorado will be far behind all eastern states as regards infant and maternal mortality, immunization against smallpox and diphtheria, and that we will have more under-nourished and physically unfit children than the wealthy eastern states.

We know that the physicians of Colorado have welcomed the traveling Health Clinics, and that they have profited by the teachings of the pediatricians and other specalists who have accompanied the clinics. Colorado has no post-graduate

[4]Follansbee, George Edward: A Doctor Diagnoses the Bills: Survey Graphic, 16:375 (Jan.), 1930.

[5]Wright, Wade; Insure for Health. Survey Graphic, 16:424 (Jan.), 1930.

[1]J. A. M. A., 94:412 (Feb. 8), 1930.

school wherein these family physicians in rural districts may be kept familiar with the progress of preventive medicine and pediatrics. Hence, the work of the traveling clinics and the local clinics established in the wake of the Sheppard-Towner work brings a real contribution, not only to the mothers and children, but to all the physicians who are responsible for the health of these communities. I hope that all Colorado representatives and senators appreciate the needs of our own state, and that all influential citizens will aid in creating sentiment demanding the passage of this forward legislation.

Sincerely yours,
(Signed) ROY P. FORBES.

Since our State Legislature is one of the few that have made no additional appropriations to compensate for the loss of federal aid, the work which Dr. Forbes describes must be paralyzed from failure of income. The original Jones-Cooper bills (S. 255 and H. R. 1195) if passed would relieve this paralysis. The bill more recently introduced by Representative Cooper (H. R. 9888) gives no assurance of doing so. It is our suggestion that medical men go into joint session with the branches of the Woman's Auxiliary, determine the policy which they wish to promote and then let their representatives in the national legislature know in no uncertain terms what are their wishes. Thus and only thus can they exercise their due influence in the modern democracy.

CHILDHOOD TUBERCULOSIS

The National Tuberculosis Association is launching this month a campaign intended to arouse the public to the significance of childhood tuberculosis. The public is to be told that "the seeds of tuberculosis are sown during the early years of life," that "children in whom tuberculosis threatens may have symptoms so slight as to be overlooked," but that by using the tuberculin test and the x-ray physicians may detect this early and curable stage of the disease.

It is anticipated that many children and especially those who have been exposed to contact with active cases of tuberculosis will be brought to the family physician for examination.

The Association has published a booklet of Diagnostic Aids, available to physicians through the Colorado Tuberculosis Association. This has been endorsed by the Committee on Childhood Tuberculosis of the American Sanatorium Association. It is written by Dr. Henry D. Chadwick who planned and inaugurated the ten-year project of diagnosis in the schools of Massachusetts and whose recent visit to this state has been so much appreciated. A section on x-rays is contributed by Dr. McPhedran of the Phipps Institute.

Colorado physicians are likely to have their own ideas about childhood infection and its recognition. Nevertheless we commend this pamphlet and its excellent illustrations to their sympathetic attention.

CORRESPONDENCE

The following "open letter" to the Colorado State Board of Medical Examiners has been submitted also to the Publication Committee of the Colorado State Medical Society by the author, Horace G. Wetherill, M.D., formerly of Denver. In reading the letter it should be remembered that the Public Policy Committee of the Colorado State Medical Society recently condemned by resolution that part of the new Registration Fee Law which requires a ten-dollar annual fee from non-resident Colorado licentiates:

Monterey, Calif., March 5, 1930.

To the State Board of Medical Examiners,
224 Capitol Building,
Denver, Colorado.

This acknowledges your notice that a "Registration Fee of two dollars (or if not a resident of Colorado, $10.00) becomes due on January 1st each year and delinquent on the succeeding March 1st."

One who graduated from the Medical Department of the University of Pennsylvania in 1878 and was licensed to practice medicine in the state of Colorado, July 5, 1892, and who is now a legal resident of the state of California, finds himself therefore, on this fifth day of March, 1930, a "delinquent," and as he has no intention of contributing ten dollars a year to the maintenance and support of the State Board of Medical Examiners of the State of Colorado, he is confronted with the prospect of being excommunicated and out-lawed in a community in which it has been his proud privilege to practice his profession and

to live an honorable and upright life for more than a generation.

His membership in our County, State and National societies is jeopardized, his privilege to return to Colorado to practice his profession is denied to him excepting under penalty for reinstatement, as your board "may without hearing or notice cancel his license," and "If application for reinstatement is made **the Board shall consider the moral character and professional qualifications of the applicant** upon notice and hearing before ordering reinstatement and unless such showing shall thereupon be made to the board as would entitle the applicant to an original license, **reinstatement shall be denied.**" The burden of proof is apparently to be his before an omniscient political oligarchy. You are therefore preparing to deprive him of his vested rights of great value to him without due process of law and so far as he is able to ascertain in an unconstitutional and illegal manner.

The discrimination in your fee bill against the non-resident—ten dollars as against two—is so evidently unjust and discriminatory and without justification or excuse, and so evidently unconstitutional in its application and purpose that his determination to refuse payment of this fee is strengthened, and, in the hope that some one whose greater personal interest in this matter may contest it and have the law declared unconstitutional by the courts, he gives you notice that he will decline to pay it. You may therefore proceed with your measures for his excommunication.

All of this inclines him to comment upon the general administration of the laws under which State Boards of Medical Examiners operate.

In many states, indeed he might say in most of them, the law is administered by one or more political henchmen, who if not an actual disgrace to the medical profession, reflect no credit upon it.

Never was there a time in his recollection of more than a half century of medical history when quacks and cults and sectarian practitioners were more unrestrained and the ethical, honest and conscientious medical practitioner was more hampered and annoyed and inconvenienced by a multiplicity of foolish laws. This category includes first, the Harrison Narcotic Act, with a coincident abuse of bootleg narcotics without precedent in the history of the world; second, the Eighteenth Amendment and the Volstead Law, and the incident deluge of poison booze; and third, the laws for the creation of State Boards of Medical Examiners, who annoy and interfere with those who have an honest integrity of purpose and exercise only a very limited restraining influence upon the crooks and quacks. One has his doubts whether "the game is worth the candle" and whether we should not all be better off if all Medical Examining Boards were abolished and the dear people were allowed to exercise their own sweet will in the selection of medical advisors. If it were possible to have one National Board of Medical Examiners for all of the states to pass upon the credentials and qualifications of all practitioners of medicine,—quacks, cults and sectarians included,—something worth while might be accomplished that might be of real service to humanity. That, however, is a Utopian dream impossible of realization. As it is, the practitioners of medicine who are controlled, taxed, restrained and hampered, are the better element who are trying to be decent and to render a real service to mankind.

The present system of political appointments prevalent in most states produces Medical Examining Boards of, at the best, merely mediocre attainments, many of whose members could not pass their own examinations, and at the worst, with one or more members who are sectarian cultists, conspicuous charlatans, or (presumably in "the far West") an occasional notorious abortionist.

How it is possible for boards so constituted to improve the conditions under which the healing art is to be regulated, one cannot comprehend.

Is it in the interest of mankind and of the public welfare to require graduates of standardized high grade medical colleges to come before such boards for re-examination and, perhaps, degradation, if "the moral character and professional qualifications of the applicant" are not up to, or down to the requirements of such a heterogeneous board? Furthermore, is it in the interest of public policy to empower such an omniscient political oligarchy to "suspend the right of any licentiate to practice his profession" or to decree that his "reinstatement shall be denied," regardless of his years of honorable service in his profession and to the state? One naturally has some doubts regarding the expediency of giving such important plenary powers to any partizan political appointees under any circumstances. Matters of such great importance and, to the victim, vital in that they may deprive him of his one and only means for earning a living, should certainly be passed upon by no less responsible and authoritative agencies than the regularly constituted courts of law.

That each registered physician in a state shall be required to contribute to the maintenance costs of such boards, and that non-resident registrants should be taxed five times as much as residents for such a purpose is unjust and deplorable beyond belief, and this kind of "dog tax" will be perpetuated and piled higher and higher as the years go by if some organized resistance is not built up against it. Certainly some determined attempt should be made to demonstrate the unconstitutionality of this last bit of petty political graft upon a long suffering profession.

Faithfully yours,

HORACE G. WETHERILL, M.D.

SOCIAL INSURANCE

RENE SAND, M.D.
Technical Counsellor, League of Red Cross Societies
PARIS, FRANCE

There is probably no other topic, with the exception of prohibition, on which opinions are more violently conflicting than social insurance. Some have asserted that it is a socialistic scheme, forgetting that this institution was launched by Bismarck, in 1883, introduced later in Austria (1881), Hungary (1891), Luxemburg (1901), Norway (1909), Serbia (1910), Great Britain (1911), Rumania (1912), and even Czarist Russia (1912), to be promoted after the war, in France by M. Poincaré and in Italy by the Fascist regime. Others maintain that the insurance medical service means the ruin of the practitioner—although every panel doctor in England seems to own a motor car—, the doom of medicine in general—is medicine really in such a decaying state in England, in Austria, in Germany?—and the general demoralization of the nation—although Germany is a real bee-hive of activity.

The idea of sharing together common risks is as old as mankind. The family, the tribe, the neighborhood, the community have always practiced some kind of mutual help. Insurance is nothing else than the reduction of this vague, unorganized and unequal form of assistance to an exact scheme, in which every one knows precisely to what sum his payments or his eventual benefits will amount. The oldest example of organized insurance is said to be the contract by which, many years before Christ, the ship-owners of the Greek islands undertook to make good by common payments the losses sustained by any of them. In ancient Greece and Rome, as well as in the Middle Ages, the artisans formed mutual benefit societies which took care of the widows, the orphans, the aged, the sick. Life insurance, fire insurance and those many forms of insurance that are now in force developed later on business lines.

Social insurance was, perhaps, not so greatly called for when people lived mainly by agriculture. If the farmer is sick or if he dies, the wife, the children, the relatives, the neighbors will keep things more or less going. And there is no unemployment on the land.

With our modern urbanization and industrialisation, the situation is different: the worker can get through, provided his health is good and he can find work. But the cloud of a four-fold menace hangs constantly over his life: accident, sickness, old age and unemployment may strike at any moment and reduce him quickly to poverty and want. Now accidents, sickness, old age and, within certain limits, unemployment, are insurable risks. Their occurrence, at a given place and time, is fairly regular. The proposal to provide for these risks through a general contributory scheme, instead of leaving their victims to be ministered to by public or private charity, originated around the year 1848, when social problems came very much to the fore. The first nation which was bold enough to put this scheme into practice was the German Empire. The government began by accident insurance and took up gradually sickness, invalidity and old age. Great Britain, under Mr. Lloyd George, adopted this system and added unemployment insurance. Presently some form of compulsory accident, sickness and invalidity insurance came to exist in every nation of Europe (except Albania, various Swiss cantons and Spain, which however is about to introduce maternity insurance). In France and in Belgium, laws introducing compulsory sickness insurance are in the process of adoption by Parliament. Outside Europe, it has conquered Japan, Chili, Argentine and Uruguay; Australia, Brazil and South Africa are getting into line. Denmark, Finland, the Netherlands and Sweden have not introduced compulsion, at any rate for sickness insurance; the state, however, subsidizes voluntary insurance to such an extent that it has become practically general. No state, after having adopted

social insurance, has ever thought of abolishing it. On the contrary, people after a certain time fail to understand how they have been able to manage things without social insurance.

The organization of social insurance

Let us see how social insurance functions in Germany.

The employer is responsible for industrial accident and industrial diseases affecting his employees; he has to take every safety measure, to provide immediate treatment when the accident has occurred and to furnish medical, surgical and orthopedic care until the victim is cured, or the treatment is of no more avail. Massage, hydrotherapy, mechanotherapy, prosthetic appliances and vocational rehabilitation are part of the cure. During all this time the worker receives an allowance. When the treatment has come to an end, if there is a reduction in the earning capacity of the employee, he receives a life-long pension, part of which is convertible into capital. If the workman dies as a consequence of the accident, his widow and children receive a pension. To meet these responsibilities, employers group themselves into local or trade associations. Some of these maintain special hospitals.

On the other side, every worker earning less than 3,600 marks yearly (including domestic servants), has to become a member of a local, or trade, or enterprise fund, which will give him in case of sickness full medical treatment (including surgical operations, glasses, trusses, drugs, massage, etc.), and pay him an allowance which is reduced and applied to the maintenance of his family if he enters a hospital. The funds also pay a lump sum for funeral expenses. The members of the household, when sick, receive the same treatment, but no allowance. Maternity is considered a form of sickness; besides medical treatment and a lump sum for maternity expenses, the allowance is paid during six weeks before and six weeks after the confinement; it is continued, but reduced by 50 per cent as long as the child is breast-fed.

Again, every manual or clerical worker is a member of an invalidity fund; when he reaches the age of 65, or when at whatever age, his earning capacity is reduced by at least 33 per cent, he receives a pension; when he dies at whatever age, and whether he was invalided or not, his widow receives a pension if she herself is invalided or over 65; the children receive a pension in every case from the father's death till the age of 15, or 21 if they are still undergoing training, or during their whole life if they are themselves physically or mentally invalided. The invalidity funds did not take long to discover that it was cheaper for them to treat invalidity as early and thoroughly as possible rather than to wait and pay the pension. They accordingly grant free care, including dental and other prosthetic appliances, to every worker whom they suspect to be on the road to invalidity. This has led them to build sanatoriums for the treatment of tuberculous workers (and their wives and children) and to help in supporting hospitals, convalescent homes, dental and orthopedic clinics, dispensaries for tuberculosis and venereal diseases, treatment clinics in spas, first aid posts; they even subscribe to housing schemes, to water supply arrangements; they share in the building of public baths; they organize post-graduate courses for doctors and nurses.

Finally, every workman, manual or intellectual, is a member of a local unemployment fund, administered in connection with the Public Employment Exchanges system which covers the whole country. When out of work, the worker applies to the exchange, and has to accept any kind of work which he is physically able to undertake, for wages customary in that trade. If such work cannot be found for him, he receives an allowance during a maximum of twenty-six weeks (thirty-nine in certain cases). He may be compelled to call every day at the Employment Exchange, or to undertake a course of training, if he is found to be inefficient.

The various local or trade or enterprise funds are federated in a national accident fund, a national sickness fund, a national invalidity fund, a national fund for miners,

and a national fund for office workers. All these funds are supervised by the Central Insurance Board.

Social insurance covers, according to its form, from 40 per cent to 60 per cent of the total population. The contribution of employer and employee is generally paid weekly by affixing special stamps on an individual card. The contributions paid, and the allowances or pensions eventually received, are reckoned according to the amount of wages or salary. The share of the employer and that of the employee are different for each form of insurance: the employer pays 100 per cent in the accident insurance, 33 per cent in sickness insurance, 50 per cent in invalidity and in unemployment insurance. If we consider the insurance scheme as a whole, employer and employee contribute about the same amount. The state pays 8 per cent of the whole cost.

The annual budget of the whole insurance scheme is now 4 billion marks[1], about 7 per cent of the national income, or 12 per cent of the total wage-bill. The funds pay yearly accident allowances or pensions to 900,000 people, sickness allowances to 9,000,000 people, invalidity pensions to 3,000,000 invalids, aged widows and orphans; there have been times when the unemployment funds paid allowances to 2,000,000 people.

As regards the medical profession especially, 85 per cent of the doctors practicing in Germany are giving part-time or full-time service to the insurance funds. Their average annual receipts in this connection are 11,000 marks. In spite of dissenting voices, and although claims have been made for accessory reforms, the German Medical Association and, lately, the German Medical Congress held in Essen in 1929, have renewed the expression of their faith in the social insurance system. They have especially pointed out that through its introduction every form of refined diagnosis and therapy has been made available to the bulk of the population, and that social insurance has played a great part in extending convalescent care, the treatment and prevention of tuberculosis, venereal diseases and cancer, the treatment of school children in dental clinics and open-air colonies, as well as maternal and infant care (two mothers and babies out of every three receive medical attention and often allowances under the insurance scheme). No doubt the public health services and other factors also have had their share in bringing about the remarkable decrease in the general mortality (from 26 per 1,000 inhabitants in 1880 to 12 in 1927), in the infant mortality (from 150 among 1,000 living births in 1913 to 95 in 1927) and in the tuberculosis mortality (from 22.4 per 10,000 inhabitants in 1890 to 9.3 in 1927), but the enormous sums which the social insurance funds have invested in hospitals, sanatoriums, dispensaries and clinics, the treatment facilities they have given to the masses, the material relief they have extended to the sick as well as to the child-bearing and child-nursing mothers, the health propaganda they have conducted among the working class, have brought an important contribution to the health of the German population.

The insurance schemes in other countries do not differ greatly from those we have just described, except for the fact that countries like England, which benefited from the experience of Germany, were able to make their schemes somewhat more homogeneous, not separating, for instance, sickness funds from invalidity funds. In some countries, old age pensions are granted by the state, without any contribution from employer or employee. In Italy, sickness insurance is limited for the time being to maternity and tuberculosis. Soviet Russia has a system of compulsory insurance which is run by the workers at the entire expense of industry. Medical treatment is state-organized and free to every one, insured or not insured.

The objections to social insurance

Let us examine the objections. First of all many people are opposed to compulsion. But to leave the non-provident to take care of himself when in need is impossible, the more so that he will not suffer alone, but

[1]The total liquor bill of the German nation is about 4 billion marks, yearly.

will drag down with him his wife and children. It is not a question of choice between compulsory insurance and free insurance, it is an alternative between insurance and relief. Consequently, the state, which would have to bear the burden of assistance, is perfectly justified in not allowing the people to behave so foolishly that they will some day become public charges, exactly as it is justified in making education compulsory, whether parents and children like it or not.

There is also the objection that insurance means a big public administration, with all the defects attached to such a machinery. Have we not exaggerated the faults of the public administrations, which are open to inspection and criticism, as compared with those of private agencies and private businesses, which are less visible? I will not discuss this point. Many insurance laws leave the individual worker free to inscribe himself in whatever mutual benefit society he prefers, provided this society allows him a minimum of service and security. But no private society, mutual or commercial, will accept bad risks; and, of course, these have to be taken care of, even more than the others. Besides, tuberculosis, insanity and the other crippling diseases represent such heavy financial burdens that they have to be borne by a strong and wide organization. This leads us forcibly to some form of state-supervised scheme. And why should insurance against the risks which threaten the workman remain outside the province of public authorities, when, by common consent, education, health, recreation and welfare are considered the responsibility of the state, the country or the municipality? In the United States the state pays mothers' pensions; it keeps the insane, the feeble-minded, the crippled in colonies or asylums; it maintains the cases of contagious disease in hospitals. Is there any valid reason for refusing to do so in the most scientific and business-like way, which is by insurance? The only difference I can see between a German or an English widow, who receives a pension from her husband's insurance fund, and an American widow, who gets hers from the state, is that in the first case the husband and his employer have contributed the premiums from which the pension is paid, while in the second it is taken from the tax-payer. The situation is not different with the other risks covered by social insurance: a German worker affected by tuberculosis will be treated at the cost of his fund, an American worker at the cost of the tax-payer or of a private philanthropic agency, which means again the public. Instead of being a burden to the general population, social insurance is on the contrary a means to keep responsibility where it belongs, that is with the employer and the employee. The contribution of the state to the whole cost of social insurance in Germany is only 8 per cent, as we have already mentioned.

Employers have objected that the premiums for the various forms of insurance amount in the aggregate to 12 per cent of the wage-bill, of which 6 per cent are paid by them, and 6 per cent by the working man himself. They complain that this 6 per cent, which they have, of course, to add to the price of the goods they manufacture, is crushing them in international competition. The answer is that almost every industrial nation has adopted social insurance, that the tariff can take care of this difference of cost, and that as the sick and invalid and aged and unemployed have to be provided for anyhow, the cost of their maintenance, if not borne by insurance, must be met by higher wages or by higher taxes, which also reflect on the cost of manufacturing goods. The only way not to pay for them would be to let them die of starvation and neglect, which no nation is prepared to allow.

The risk of abuse

Hitherto we have met those objections which can be easily answered. The risk of demoralization and abuse inherent in any broad scheme of insurance is much more serious. It is perfectly true that since the introduction of compensation for industrial accidents, some of the victims are more prone to claim indemnities than to set them-

selves heart and soul to the task of recapturing their value on the labor market. It is perfectly true that sickness insurance is daily exploited to get a week's holiday, or a free bath, or an ounce of castor oil which will be eventually smeared on the working man's boots. It is perfectly true that unemployment insurance leads families whose aggregate allowances amount to a sum on which they can live somehow, to prefer loafing on meager money rather than working on full pay.

Are these drawbacks, however, of such moment that they would justify throwing the whole machine overboard? If we were to discard every system which does not work without trouble, I wonder what would be left in the world! Are the municipal government, and party politics, and the daily press, and advertising, and movies and everything else without dark sides? So let us see whether the good effects overweigh the bad ones, and above all let us see whether we cannot prevent, in some measure at any rate, the evils which have accrued from social insurance.

The whole question was treated very accurately at the International Conference of Social Work held in Paris in 1928. It is a problem of "mass treatment" versus "case work." The Revd. J. C. Pringle, secretary of the London Charity Organization Society, explains that mass treatment proceeds from a wrong conception, from space-thinking, whereas we ought to do time-thinking. In space-thinking you take ten workers, scattered over the country. They happen to be unemployed. You put them together in an artificial group, the unemployed, thus segregating arbitrarily that part of their lives which they have in common, unemployment, and you treat that factor only, which is completely unsatisfactory, because the one is unemployed on account of age, another because he is sickly, a third because he has never been proficient in his trade, the fourth because he is a loafer. Moreover, you give them all the same treatment, a fixed unemployment allowance, too small for some, and too liberal for others, whereas you ought to have devised individually the remedy which will meet the real need in each case. The argument is very strong, and leads to the conclusion that we ought to individualize our social measures, instead of generalizing them.

Is this, however, really always desirable and practicable? Dr. Neinhaus, who treated the subject very fully at the conference, recalled two facts. The first is that the unemployed, just like war-invalids and other groups who feel a kind of solidarity, are not to be compared with those who happen to fall into poverty through a variety of causes acting on them individually and casually. Unemployment, as forcefully pointed out by an employer, Mr. Seebohm B. Rowntree, is a consequence of the industrial system; it occurs when business has miscalculated the possibilities of the market; so that, as a group, the unemployed feel that business, or the community, has a duty towards them, just as we feel that the nation has a duty towards the war-invalids.

The second fact is that case work finds its justification when the individual or the family wants readjustment, but not when the only element needed is medical treatment, or money, or employment. This happens precisely when an industrial crisis suddenly spreads a wave of unemployment over the country. A general allowance is then a much quicker and cheaper remedy than the refined and detailed methods of social case work. Besides, which country has enough trained social workers to do justice to a million or two unemployed? What has happened in countries like the United States, at times when unemployment prevailed, was that the social agencies were so overburdened with cases that they could not give them the necessary amount of attention, and that the whole of their work, including cases which needed a patient readjustment, suffered accordingly.

We must agree, nevertheless, that it would be very profitable to combine mass methods with individual methods in order to take adequate care of every case in which something more could be done than just allow

the necessary relief to tide over a period of unemployment or sickness.

Of course no unemployment insurance is workable without a complete system of Public Labour Employment Exchanges. Only such agencies are able to arrange a speedy return to work when employment is available, and to put the good faith of the unemployed to a real test.

The pains of medical insurance

We are left now with one point only, but it is the most difficult and most disputed of all: the medical service connected with accident, sickness and invalidity insurance.

No country seems as yet to have devised a satisfactory system of medical insurance, for two main reasons.

The first is that the bulk of the population has not hitherto received adequate medical care. How could it be otherwise? The doctor who is practicing among the poorer parts of the population is paid very small fees, sometimes no fees at all; he has to make up this deficiency by seeing daily a great number of patients; of course the quality of his work must suffer. And how could he impose on these patients the cost and trouble of blood-analysis, radiography and examination by various specialists, not to speak of special and costly modes of treatment? This was the state of things before social insurance existed. When the insurance was introduced, the cost of medical service was reckoned according to prevailing conditions. The necessary consequence was that the situation remained very much the same for doctor and patient alike.

On the other side, medicine has changed to an extent which is not realized by the majority of the physicians themselves. Their unions — the medical profession is now strongly syndicalized all the world over — struggle to retain a form of individual medicine which becomes more and more obsolete. No doubt, we ought not to lose the benefit of the family physician. But he is practically helpless if he cannot have his patient analyzed, x-rayed and examined by various specialists with the minimum loss of time and the minimum amount of expense. Until the day when doctors will work in teams and enjoy the facilities of diagnostic clinics, medical practice will remain unsatisfactory.

It is true that accident, sickness and invalidity insurance have led in Germany to the establishment of numerous clinics, hospitals, sanatoria, dispensaries and convalescent homes. Nevertheless, no attempt has been made to build organically a new medical service, based on modern scientific lines. The cost would, of course, have been considerable, and after all medical care was not the main purpose of the insurance scheme. The gap remains and will create difficulties as long as it is not filled.

To avoid this pitfall, some people have suggested that the insured workman be free to seek whatever medical treatment he can get, the insurance fund paying him a fixed daily sum to cover his medical expenses. This system has more drawbacks than the present one. Firstly, the physician, being completely independent of the insurance fund, would probably grant his certificates even more freely than he does at present, thus leading to an increase, not to a decrease of abuse. Secondly, the patient would be tempted to economize on medical care, so that he would get less attention than he receives now. Thirdly, in cases needing an operation or any kind of costly treatment, the sum allowed by the insurance fund being much too small, the patient would either remain unattended or have to apply to some charitable agency, which is precisely what insurance was intended to avoid.

The same difficulties confront the proposal to exclude the short illnesses from the scope of the insurance scheme. It is maintained, not without reason, that an illness which does not last more than one or two weeks cannot really cripple the resources of the worker, either by the loss of his wages or by the medical expense which it entails. These short illnesses lend themselves easily to abuse, and are in the aggregate very costly through their considerable numbers. All this is perfectly true. But on the other side we are constantly reminded by doctors and

hygienists that early diagnosis and early attention are the most important factors in curative and preventive medicine. Can we run counter to this advice and manage things in a way which will prevent the worker from seeking the doctor at the earliest possible moment? In fact, the German accident insurance scheme was based precisely on such a notion: in order to avoid responsibility for the enormous mass of small accidents which occur in industry, it was decided that compensation and medical treatment should only be granted from the fourteenth week after the injury. The sickness insurance funds were responsible in the meantime. This gave such bad results that the accident funds decided to step in from the beginning.

The problem of insurance medical service remains open, but it can be safely maintained that the trouble does not lie mainly with the insurance system. In countries which have not adopted this scheme, the bulk of the population is no better off as regards medical treatment than it is in the states which practice this system. The truth is that everywhere there are only two classes of patients receiving adequate treatment: the rich, who can pay for it, and the poor, when they are treated in our best hospitals. People of the so-called middle class, people with moderate incomes, share the plight of the working class. It is not a question of bettering the insurance medical system, but of reforming the whole of medical practice. Medicine has become more complicated in the measure that it has become more scientific and more efficient. It can no longer be practiced single-handedly, with no other appliances than a stethoscope, a clinical thermometer and a hypodermic syringe. We only confuse things when we speak of the menace of socialized medicine or state medicine.* Whether we shall have to come to that or not is impossible to say now and irrelevant to the subject. One thing however is sure: that we shall not be able to continue indefinitely with a decidedly obsolete and inefficient form of medical practice, with a system which gives full attention to a minority, and only inadequate care to the majority. The cost of reforming this situation will be considerable, but the money so invested will pay in quicker and more complete cures, as we see in our best hospitals, where the average stay of the patients is being constantly shortened. The greatest difficulty is not economic, but psychological. No profession undertakes easily to change its customs and the basis on which it is built. Necessity, however, will hammer at the door until this is done.

*Sweden has had a very satisfactory state medical system, co-existing with private practice, since the XVth century. There are now 550 state physicians (350 in country districts) and 600 private physicians in Sweden.

Envoi

I want to add that nothing in this short contribution should be understood as a recommendation to the American people or to the American medical profession either in favor of or against introducing social insurance. Every country has to decide for itself, according to its spirit and to its conditions. It may be, for instance, that the much higher wages paid in the United States enable the worker to make provision for himself, which is generally impossible to the European worker. It may be that the whole thing could be better run in America by private insurance companies, with or without compulsion for the employer to insure his workers, with or without state subventions. I do not know.

What I have tried to give here is an account of my experience of social insurance in Europe. It is only intended for information. For me to go further and to offer advice would be both an imprudence and an impertinence which I have learned in my career of international social worker to avoid most carefully.

Colorado Medicine is glad at all times to publish the views of its readers upon matters of medical public interest. Address correspondence to: The Editor Colorado Medicine, 466 Metropolitan Building, Denver, Colorado.

UTERINE DYSFUNCTION IN MIDDLE AGE*

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Every woman who reaehes forty years of age is entering upon a decade of her life where eertain problems of health may confront her, requiring most careful consideration in diagnosis and treatment. Foremost among such problems is that ineident to any abnormality in menstruation.

Normally a woman nearing the menopause should show a gradual decrease in uterine and ovarian activity. The monthly periods should beeome less frequent, the flow should diminish, and finally there should be a cessation of function, without great disturbanee. Unfortunately, in civilized woman such a happy eourse of events is the exeeption rather than the rule, and very often the woman becomes a nervous and physieal wreek and goes through a stormy period of adjustment leading to premature old age. Too many go through this unhappy experienee unaided, ignorant of the faet that the wise eounsel of the physician may guide her safely through her ordeal to the time when some of the best years of her life lie ahead of her. The various forms of menorrhagia and metrorrhagia, the abnormalities of uterine bleeding which so distress these women and sap their strength, will eonstitute the basis of the present discussion, and an attempt will be made briefly to differentiate the eauses of such abnormalities and the proeedures best adapted to their eure.

These women being in the so-ealled "eaneer age" it beeomes of the utmost importance that there be made an aeeurate diagnosis of any abnormality that may affect their generative organs. In the majority of eases a physical examination supplemented by elinieal judgment will suffiee to classify the average run of gynecological eonditions, but in many instanees it will be found neeessary to prove or disprove the presenee of malignaney by the mieroseopieal examination of tissues removed at biopsy or by eurettage. In considering the law of probabilities it must be remembered that uterine bleeding before the menopause is most likely to be from non-malignant lesions, while that oeeurring after the menopause is likely to indieate malignancy.

Most eases of uterine dysfunetion manifest themselves by abnormal bleeding or abnormal diseharge, aecompanied by varying degrees of anemia and asthenia ineident to the loss of blood, or to the debilitating effeets of whatever pathological condition may be present. One of the most usual eauses of sueh bleeding is the presenee of fibroids, whieh may be either interstitial, submucous or subserous. The presence and nature of these growths ean usually be determined without diffieulty. Uterine polyps may eause bleeding of a persistent type. These growths ean often be found protruding from the eervix. The possibility of retained seeundines must never be lost sight of, even in women well along in years. A period of amenorrhea followed by profuse and eontinued bleeding should lead one to consider this possibility.

Hyperplasia of the endometrium is a very eommon eause of persistent and irregular bleeding, while eareinoma of the body of the uterus is a eondition less frequent but far more serious. Aeeurately to differentiate these last named eonditions it may be neeessary to examine macroscopically and microseopieally the tissues removed by eurettage. In lesions of the eervix the possibility of malignancy must be carefully considered, and ruled out by biopsy and mieroseopieal seetion if there are reasonable grounds for suspieion.

Having established a diagnosis, it then beeomes of the utmost importanee to adopt a plan of treatment whieh will be effieient and best fitted to the needs and eondition of each individual patient. Sueh treatment may be elassified as medieal, radiologieal and surgieal, or a combination of the three. In eases sueh as I have seleeted to diseuss, the medical and topical methods of treat-

*Read before the Colorado State Medical Society, Greeley, Colo., Sept. 3, 1929.

ment can play but a small and infrequent part, so I shall attempt only to briefly summarize the indications in a general way for surgical or radiological treatment.

As between these two methods, the selection should be made under the broad general principle that when two or more methods are available for the treatment of disease, that one should be selected which will entail the least risk to the patient, and also the least possible inconvenience and expense. Under this principle, radiotherapy will be the method of choice whenever, in the judgment of the physician, it is likely to be effective.

In the most common forms of uterine bleeding, notably in that due to fibroids or hyperplasia of the endometrium, radiotherapy is practically specific, and should always be the method of choice unless there are very definite indications for surgery, such as the rapid breaking down of a submucous tumor, or a tumor of unusual size.

A pedunculated tumor extruding from the cervix should be removed surgically, and radiotherapy may be used as an adjuvant. Fibroids accompanied by a severe degree of uterine displacement, or by large tumors of the ovaries, or other conditions which are essentially surgical, should be referred to the surgeon and not to the radiologist. Carcinoma of the body of the uterus calls for panhysterectomy, while carcinoma of the cervix is usually best treated by radium, supplemented by x-ray, cautery or surgical excision.

Physicians have long been familiar with the surgical viewpoint in pelvic disorders of middle life, and the laity have been correspondingly impressed with the idea that in surgery lay their only chance for relief. Many women have gone through years of unnecessary disability, avoiding examination because of a hope that they could thus evade the surgeon. I believe that the time has come when the conservative surgeon is ready to concede more ground to the radiologist in the management of pelvic disorders accompanied by hemorrhage, always abiding by the rule, however, that a proper selection of cases must be made and surgery resorted to when indicated.

Conclusions

1. Where there is uterine dysfunction, elective treatment should be based on definite diagnosis.

2. When the trouble is functional, or clearly within the domain of radiotherapy, this method should be selected, because of its relative simplicity, safety and economy.

3. Surgical measures should be instituted in all cases which appear to demand abdominal incision and pelvic exploration.

DISCUSSION

G. H. Cheley, Denver: Dr. Matlack has asked me to open the discussion, perhaps from the surgical aspect of his paper.

I feel that we all agree that we are progressively using more and more the radiotherapy methods in dealing with this condition, which a few years ago was almost considered surgical. However, we still must rely upon surgery in a large number of well defined bleeding cases for accurate diagnosis. We repeatedly find cases treated for uterine bleeding, which, because of a normal physical examination, and normal pelvic examination, are considered as some obscure ovarian dysfunctions, and are treated by deep x-ray therapy or by radiotherapy only at a short period later to give evidence of malignancy that has been accentuated in its growth, apparently, by the action of radiotherapy. That has come to my attention in recent months in a patient examined in careful hands. Diagnostic curettage was not done, the lesion being considered as one of the menopause changes, deep x-ray therapy was administered, and in a very brief time it was shown that carcinoma of the cervix must have been present in the cervical canal at the time treatment was instituted. So that from the surgical aspect it is important to rule out by diagnostic curettage the possibility of early carcinoma within the canal.

I am not well enough versed in radiotherapy to discuss the subject, but it does impress me that probably the dose of radiotherapy used merely to control the bleeding of the patient, is entirely different from the dose used when malignancy is known to be present. As Dr. Matlack has suggested, the ordinary benign lesion, such as cervical polyps and pedunculated fibroids, are surgical lesions. Carcinoma of the cervix, whether it be the squamous cell or adeno-carcinoma, undoubtedly may as well or perhaps better be treated by radium than surgery, and if surgery has a place in this field at all, it is as an adjunct in excavating the mass so that the radium can be applied to the lesion.

The question of intra-abdominal lesions producing bleeding again requires extremely careful examination and diagnosis. The possibility of an early extra-uterine pregnancy, the possibility of a lesion in the ovary producing a congestion of the endometrium, must be ruled out before one can proceed intelligently. Perhaps the future viewpoint will be more conservative than it is at the present time regarding the treatment of fibroids. I agree with Dr. Matlack that where the fibroid is small, where its only symptom is one of bleeding, and where that bleeding can be

controlled by radium, that that is the proper procedure. However we are in a cancerous age. We are meeting patients who have been told that these lesions carry with them a certain percentage of danger from malignancy, and we are going to be obliged to meet that problem by surgery for the welfare of the patient's peace of mind.

Within the past week a case has come under my observation that required such treatment. This patient had a small fibroid that might well have been handled, as far as bleeding was concerned by x-ray; but this patient had been told by her physician that the probability of malignancy developing in this fibroid was about 10 per cent. I do not agree with that percentage—yet when that patient comes to you as a medical problem, nothing will satisfy her except surgery, and I think we are justified, in that type of case, in doing surgery, either removing the fibroid, or the uterus, as indicated.

F. B. Stephenson, Denver: I don't know just what Dr. Wasson had prepared to say on this subject, and I am pinch-hitting for him on short notice.

It was early learned that the sex glands were especially susceptible to x-radiation, but just how the x-rays operate biologically to cause the effect they do, we are not at all certain. We know that certain changes do take place, microscopically; but to go to the ultimate changes in the biochemistry of the cell, is a little bit beyond us at the present time.

With regard to the function of menstruation, we believe that the effects that we get from radiation are due to the effect on the ovary, primarily, and probably not on the uterine mucosa. The uterine mucosa does participate physiologically in the phenomenon of menstruation, but it is probable that the low dosage we use affecting the ovary would not materially affect the mucosal structure of the uterus. It is found when complete menopause has been brought about by radiation, that the change is analogous to the change that takes place at the normal menopause.

The question of contra-indications may be a bone of contention between the radiologist and the surgeon for some time. I certainly subscribe to the theory that we should rule out malignancy of the fundus before resorting to radiation alone.

In regard to the technique: In treating these cases we prefer to give the dosage at intervals of three or four weeks, and watch our results. About 70 per cent of the erythema skin dose, if delivered within the tissues of the ovary, would have the desired effect. In order to get that much radiation within the body of the ovary, we must deliver more than that to the skin surface. However, it is done by going through separate skin portals so that we can get through to the ovary without damage to the skin.

As to the after results, where there have been no complications, I do not know of anything in radiology which causes the patient to be more grateful than these treatments for menstrual disturbance at or near the menopause.

We are asked sometimes as to whether tuberculosis is a contra-indication. We have not found it so. The amount of radiation we give is not enough materially to affect the blood stream, and if it did give us some anemia, we are going to stop hemorrhagic anemia by this treatment, which we can do; I have two cases in mind which were practically exsanguinated and were brought through, even without transfusion. Most of these cases which are so badly exsanguinated should have transfusion before treatment is instituted.

With regard to regulating the amount of radiation, it occurs to me to mention that in cases of amenorrhea in younger people, and dysmenorrhea, it has been found that small doses of x-ray will often bring about normal menstruation, and there are a great many cases on record where young women who have been married and have been sterile have afterward established regular menses and have borne children following a dosage of radiation that is very small.

Dr. Matlack (closing): I am glad that Dr. Stephenson has amplified a little the matter of technique. Of course, I did not go into it, because the purpose of my paper was to call attention to the fact that we have a method of treatment that is so very simple and so very efficient that women who are going through a comparatively normal menopause may and should take advantage of it, because it will relieve them of a great many years of anxiety and distress. The simplicity of the radiological procedure should not, however, lead us into thinking that it is a specific for all conditions, and my purpose was to try to regulate any controversy that might exist between the surgeon and the radiologist, and have each take his part, because there are many cases distinctly surgical, and the surgeon should, in a majority of the cases, first establish the diagnosis.

Bibliography on clothing and health

People interested in the hygienic aspects of clothing will find 1,184 books and articles on the subject listed in a new publication of the U. S. Department of Agriculture, Bulletin No. 62-MP, "Bibliography on the Relation of Clothing to Health." The bliography is by Ruth O'Brien, in charge of the textile and clothing division of the Bureau of Home Economics, Department of Agriculture, and two of her former assistants, Esther C. Peterson and Ruby K. Worner. There are many citations from German and other foreign literature. Each reference states briefly what the publication or article covers, and, in many cases, from what point of view the subject is treated. The citations are grouped chronologically under several heads: The effect of garment style on health, in both the physiological and psychological aspects, with separate references to discussions of children's, men's, and women's clothing; the effect of clothing fabrics on health, from the standpoint of their chemical and physical properties; clothing as a carrier of disease. The publication may be obtained free from the Office of Information, Department of Agriculture, Washington, D. C., as long as copies are available for free distribution.

TRAUMATIC INJURIES OF THE SPLEEN*

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The purpose of this paper is to report three cases of rupture of the spleen, of which one is presented through the courtesy of Dr. H. R. McGraw, and to review briefly the literature pertaining to the mortality and to the various acceptable methods of treatment of this condition, with a short resumé of the history of splenectomy. I would like to emphasize the fact that in the main we are dealing with traumatic injuries to normal spleens, and that spontaneous rupture and diseased conditions of the spleen have no consideration in this report.

Traumatic lesions of the spleen comprise open wounds and subcutaneous injuries, the latter of which may be further divided into cases with and without rupture of the capsule. Of the two, subcutaneous injuries are much more common, in the proportion of more than 2 to 1 according to the statistics of Michelsson compiled in 1913. Rupture of the spleen is of fairly common occurrence in cases of abdominal violence, as is shown by Berger's report in 1902 comparing the frequency of splenic rupture to injury of other solid viscera due to traumatism. His findings are as follows:

Rupture of the spleen, 20 per cent.

Rupture of the kidney, 22 per cent.

Rupture of the liver, 37.5 per cent.

The symptoms and signs following injuries of the spleen vary tremendously and depend chiefly upon the site and extent of the trauma and the amount of the hemorrhage. In the usual case, as seen in the emergency room, there is localized pain, tenderness, muscular rigidity, and signs of hemorrhage. Pain in the region of the left shoulder is described in all the text books, but very infrequently in the literature, although Willis in 1919 in his report of four cases, describes this typical symptom in three of the four. In the past five years, it has been my good fortune to see six cases of ruptured spleen, but in none of these cases was pain in the shoulder a complaint. A moderate leucocytosis is an early and almost constant finding.

At this point, it is important to mention the frequent occurrence of delayed hemorrhage in these cases. One of the cases to be described in this paper is a striking example of this phenomenon. Several explanations have been offered for the delayed hemorrhage following splenic injuries. Neck attributes it to the formation of a coagulum in the splenic ruptures acting as a tampon. Demoulin advances the theory that it is due to the rupture of a large sub-capsular hematoma. Nast-Kolb, in reporting a case of his own, found the omentum packing the rupture, which he felt controlled the hemorrhage until the agglutinations ruptured.

Furthermore, Nast-Kolb reviewed the literature and found nine cases of delayed splenic hemorrhage, three of which died. In this series, the time elapsed after injury until hemorrhage occurred varied from one and one-half to nine days. He emphasized the fact that no new guides to diagnosis were obtained from his review of these cases.

At the present time, the indication for surgery in cases of splenic rupture is a well established fact. It is of passing interest, however, to quote statistics for the conservative treatment of ruptured spleens compiled by Choux in 1900 and Berger in 1902, who found the mortality to be 96 per cent and 84 per cent respectively. However, Ross in 1908 reports a recovery in a case of probable subcutaneous splenic rupture without operation.

Surgical intervention, however, has been attended with far more favorable results. The mortality with operation has been reduced from 55 per cent in 1897 to 28.8 per cent in 1919, probably due chiefly to earlier diagnosis and more modern methods of surgery, including the use of transfusions.

The type of surgery to be used depends

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to a certain extent on the individual case. There are four methods of procedure described, only three of which are of particular interest.

Surgical methods

First: Ligation of the splenic artery. This is definitely an obsolete method and not applicable in cases of splenic rupture, although occasional favorable results have been reported in the use of this method in cases of enlarged, diseased spleens.

Second: Splenorrhaphy. Suture of the spleen is to be used only in selected cases with small tears, due to the friability of the splenic tissue, and the consequent difficulty of obtaining thorough hemostasis. This method has been used very infrequently, only three cases being reported in the literature up to 1905, but Ross, in 1908, reports two further cases of its use, with one recovery and one death.

Third: Tamponade. The method of packing or use of tampons holds a very definite place in the treatment of traumatic injuries of the spleen. While its use is of doubtful value in extensive or multiple lacerations, the result of this form of treatment in less extensive injuries has been attended with a surprisingly low mortality, as was shown first in 1908, and again by Ross, who reported six cases treated by tamponade, five of whom recovered and only one died. Barnes, in 1914, reviewed the literature and found that the mortality in cases treated by suture, tamponade, or by a combination of these methods, was only 8.4 per cent. Again, Wallace, during the World War, reported sixteen cases treated by packing, with twelve recoveries and only four deaths.

Fourth: Splenectomy. Removal of the spleen in cases of rupture has always been and still remains the procedure of choice in the great majority of cases.

Operative removal of the spleen dates back to the sixteenth century, when Zacarelli, a Neapolitan surgeon, in 1549 completely excised, without incident, an hypertrophied spleen weighing 1340 grams. The authenticity of this case, however, is doubtful. Viard, a French surgeon, in 1581, is credited with having removed successfully the first prolapsed spleen.

During the 200 year period from 1600 to 1800, there were reported in the literature ten cases of partial splenic resection for incised wounds of the spleen. All cases were reported as having recovered. There were unquestionably many fatal cases, however, none of which are recorded.

O'Brien, a naval surgeon, in 1816, performed the first extirpation of the spleen in America. From 1800 to 1850, five other cases of splenic surgery were reported, with only one death. In 1855, Küchler, of Germany, performed the first splenectomy in an authentic case of malaria, the patient dying four hours after the operation. The first successful extirpation for a malarial spleen was performed by a Dr. Dorsey, of Piqua, Ohio, in September, 1855.

During the twenty-five-year period from 1855 to 1880, there were reported twenty-five cases of partial or complete splenectomy. Up to this time, almost the only indication for operation was prolapse of the spleen due to an incised wound in the left hypochondrium. However, during this period mentioned, of the twenty-five cases reported, only five were cases of this nature, the remaining twenty being operated for leukemia, malaria, cysts, hypertrophy, or floating spleen. Of these twenty cases, only two survived, the cause of death in the remaining eighteen being, hemorrhage in thirteen and sepsis in five.

Since 1880, on account of the increasing frequency of splenectomy, it is not feasible to detail further statistics.

While the attendant mortality, as will be shown, is higher with splenectomy than with tamponade, it must be remembered that excision of the spleen is the only method applicable in the cases of extensive lacerations.

Berger, as far back as 1902, collected sixty-seven cases of ruptured spleen treated by splenectomy. The result of this series was, thirty-eight recoveries and twenty-nine deaths, a mortality of 43.4 per cent. Johnson recorded 113 traumatic cases from 1900 to 1908 and by a review of the literature

added thirty-seven more cases, making a total number of 150 cases of splenectomy, with a mortality of 34 per cent.

Barnes, in 1914, reviewed thirty-one cases of traumatic injuries to normal spleens, also treated by splenectomy, and found the mortality in this series to be only 7.6 per cent, a surprisingly low figure, in view of the fact that Willis, in 1919, reviewed a further series of fifty-five cases of a similar nature and found the mortality to be 28.8 per cent.

Although it is a well recognized fact that the loss of the spleen is perfectly compatible with life, yet a great volume of experimental work has been done to determine exactly what are the effects of splenectomy, and these results may be summarized as follows:

Secondary anemia of moderate grade, which usually disappears within two to three months;

Leucocytosis, with an increase of the polymorphonuclears and moderate eosinophilia, lasting up to nine months;

Increased resistance of the red cells to hemolysis;

Increased excretion of iron—probably due directly to the anemia;

Increased blood cholesterin;

Diminished output of uric acid and urobilin;

Decrease of urinary chlorides;

Enlargement of the thyroid in some of the cases;

Hypertrophy of any splenic tissue remaining in the body;

Compensatory hypertrophy of the lymphoid tissue throughout the body;

Further than this, there seems to be a rather prevalent impression that splenectomized individuals are more susceptible to infection, but this finding is not borne out by experimental evidence. Of additional interest in this connection is the hypothesis of Barcroft who states that the spleen is useful in buffering mechanically the vascular system against sudden emergencies in the circulation such as those caused by hemorrhage, exercise, etc.

PRESENTATION OF CASES

Case 1. The first case is one of an open wound of the spleen. This patient, a man of thirty, was attacked in September, 1928, at a street carnival by an unknown assailant with a knife. He immediately collapsed and was taken to the Denver General Hospital, where he was seen within an hour after the accident. Physical examination revealed a well nourished man in extreme shock, with ashen gray facies, subnormal temperature and extremely rapid, weak pulse. Examination of the abdomen showed an incised wound seven inches long, extending transversely beneath the left costal margin from the epigastrium to the tip of the eleventh rib. Almost the entire stomach, which did not seem to be injured, had herniated through the wound.

He was immediately transferred to the operating room, where a saline infusion was started, and he was prepared for operation. After reducing the herniation of the stomach, a large amount of blood escaped from the wound. Exploration revealed fully a liter of fresh blood in the abdomen, with active bleeding from the region of the spleen. The stomach, transverse colon, splenic flexure, and left kidney showed no evidence of damage, but there was a good sized rent in the lower pole of the spleen and it was felt that the incision extended through the diaphragm into the left pleural cavity. Inasmuch as the patient was pulseless, the idea of splenectomy was abandoned, and two five-yard rolls of gauze were inserted as packing into the left hypochondrium, the free ends being brought out at the lateral angle of the wound. Six interrupted, heavy silk sutures were used through all layers to approximate the wound edges.

His postoperative condition for several days was very poor due to a complicating left-sided pneumonia, which developed, I believe, as a result of trauma of the lung. After ten days, the packing was gradually removed a little each day, following which his recovery was uneventful.

Case 2. The second case is that of a boy 14, a caddy at the Country Club, who on August 16, 1927, while walking on top of a fence, fell, striking his left side on the fence. He was able to walk, but experienced moderate pain in the side, so he was taken home. I was called to see the boy four hours after the accident, and examination at that time showed the temperature to be 99.5, pulse 100, and respirations 30. There was marked tenderness over the left lower ribs in the axillary line, with diminished breath sounds over this area, but no rales. The abdomen showed slight distention, generalized tenderness, most marked in the left upper quadrant and questionable dulness in the left flank. Dr. H. R. McGraw, the surgeon in this case, was called and agreed with the diagnosis of rupture of the spleen. He was transferred to St. Joseph's Hospital and prepared for immediate operation. The pre-oper-

ative white blood count was only 9,200. A left rectus incision with a lateral extension was made. Fully a pint of fresh blood was encountered in the left lumbar gutter and active bleeding from the hilus of the spleen was found. The pedicle of the spleen was clamped and ligated, and the spleen removed. The abdomen was closed in layers. Examination of the spleen after removal showed a tear one and one-half inches long, just above and extending into the hilus.

The postoperative course was complicated by a wound infection with partial disruption, and later by the development of a left sided empyema necessitating a thoracotomy. Although the convalescence was delayed almost four months, the final outcome was satisfactory, and since his discharge from the hospital 15 months ago he has gained 40 pounds in weight and attends school regularly.

Case 3. The last case to be described is of interest, firstly, because it is an example of delayed hemorrhage, and secondly, on account of the postoperative complications. A boy of thirteen, on September 1, 1928, while running, tripped over a low wire fence, fell forward and struck on his chest and abdomen. He was taken to the Denver General Hospital, where x-rays of the chest were taken and found to be negative, and he was released and allowed to go home. He remained in bed that day and the next, except for a few minutes the second morning, when he sat up, but became nauseated and vomited once. His only complaint was colicky pain in the left upper quadrant. I first examined him at his home on the evening of September 2, almost 36 hours after the accident. The boy did not appear to be acutely ill, the temperature was 98.4° F., the pulse 68. The lungs were clear throughout, and examination of the abdomen revealed only slight tenderness in the left upper quadrant. There was definitely no spasm, rigidity, or dullness in the the flank. During the night, the pain became gradually worse and early the next morning he vomited coffee ground material. I saw him at 9 a. m., at which time the temperature was still normal and the pulse 70, but his removal to the hospital was advised and done. At 11 a. m., two hours later, the picture had altered considerably. He was obviously suffering a great deal, the temperature was 99.6 and pulse 85. The abdomen showed marked rigidity of the left side and dullness in the left flank was elicited. The hemoglobin was 80 per cent, red blood cells 3,500,000 and white blood cells 12,500, polymorphonuclear cells 92 per cent. Rupture of the spleen was diagnosed and he was transferred to the operating room. A left rectus incision was made, and a pint of blood was evacuated. The spleen was quite small and situated high up under the ribs. The bleeding was seen to come from the very upper pole of the spleen and could be nicely controlled by pressure, so two iodoform packs were inserted with pressure to this area and the abdomen closed in layers, using double suture material and six silk worm gut retention sutures.

He had an uneventful postoperative course for the first eight days. The morning of the eighth day the two gauze packs were removed without difficulty and without hemorrhage. That same evening he complained of pain in the wound, his pulse became more rapid, he vomited once. An inspection of the wound showed good approximation, but fresh blood on the dressing. The diagnosis was secondary hemorrhage from the spleen, but at operation I was surprised to find that the wound, with the exception of the skin, had entirely disrupted. The spleen was visualized, but no hemorrhage had occurred, so the disruption was repaired without drainage, using nine interrupted heavy silk sutures through all layers. On account of the poor condition of the patient, this second operation was followed by a direct transfusion of 350 c. c. of blood, using his father as donor. The postoperative course was quite stormy for the first four days, following which his course was again uneventful for about a week. He was then allowed a soft diet, but soon began to vomit. This continued until he was vomiting even liquids. A gastro-intestinal series at this time showed partial obstruction of the small intestine, so a third operation was decided upon and done October 5, 1928.

Through a right rectus incision, a mass of matted-together coils of small gut was encountered, which was only freed after a great deal of time and difficulty, due to well organized and vascular adhesions. After freeing the adhesions, the length of intestine involved was about three feet. His condition was so poor that a resection could not be considered, so a simple jejunostomy was done through a stab wound incision high up on the right side, and the abdomen closed in layers without drainage.

Following this procedure, the drainage from the jejunostomy opening was profuse, and even after removal of the tube, continued to discharge for over a month, when it closed, and on November 16th, five weeks after operation, he was allowed to go home, but on the same day developed further signs of obstruction, with vomiting, and was readmitted to the hospital. Fortunately, however, the old jejunostomy reopened spontaneously and discharged profusely for three days, with complete relief to the patient. He gradually improved and was again allowed home December 6, 1928.

During the past four months, his condition has been very satisfactory, he has gained 30 pounds, and has had no recurrence of any symptoms of obstruction.

PUBLIC HEALTH NOTES

Editor J. W. Amesse, M.D.

Where does Colorado stand?

An interesting summary of what various states were doing in 1925 at the time the study was made, in public health education is contained in "Public Health Bulletin 184," recently issued.

Organization: The state departments of health of seventeen states have a separate bureau or division in charge of educational activities, while twenty-two states conduct the work in the executive or central administrative office.

Publicity: In ten states the director of the bureau or division of public health education is also responsible for publicity, in twenty-seven states the executive officer himself handles publicity, and in Louisiana and Massachusetts the director of the division of child welfare handles it.

Newspaper Service: Seventeen states maintain regular newspaper service.

Each week the Illinois State Department of Health mails a 300 word story and a page of pointed paragraphs to every newspaper in the state. Pennsylvania syndicates a weekly health letter to 300 newspapers, Texas to 450 newspapers, and Virginia to 145 papers. In West Virginia once a month a column of plate is sent to the country weeklies. At the time this material is released by the country weeklies it is sent to the city dailies as "Newsgrams."

Bulletins: Thirty-five state health departments publish periodical bulletins. Seven state departments of health did not publish any bulletins or pamphlets in 1925. Of the thirty-five states issuing a regular bulletin, twenty-seven also published pamphlets on special health subjects during 1925.

Graphic Material: Portable exhibits on various health subjects are used by thirty-six of the states.

It would seem time that a reorganization of Colorado's State Health Department were seriously considered. Many of the laws and regulations date back to the nineties. The present Health Department cannot function adequately except in accordance with an up-to-date organization and regulations.

It would reflect great credit on our State Health Department were they to invite the U. S. Public Health Service to make a study and to prepare a program to be followed in a reorganization of our Health Department laws and regulations. Such action could be carried out with only a small expense to local people and would put Colorado in line with the work that is being done in other states. To mention only our neighbors, Utah takes front rank in the organization and accomplishments of its State Board of Health. Just a few years ago the State Board of Health and the Department of Public Welfare of New Mexico were entirely reorganized with the result that they are able to do their work much more effectively. At the present time the state of Wyoming has invited the Rockefeller Board to make a study of their organization and to make recommendations for future action.

Income from preventive medicine

The American Journal of Public Health has an interesting editorial in the January number on the Doctor's Income and Preventive Medicine. Figures are quoted to illustrate the fact that while preventive medicine may have reduced the physician's income from certain sources, the physician today has more practice of a far better kind. In 1927 in the state of Michigan eighty-two cases of diphtheria were reported for each 100,000 population.

"A comparison of incomes to the physicians between fees received for the treatment of cases and those paid for the immunization of babies reveals that even where the disease has the above unusual prevalence, preventive medicine is as productive financially as curative medicine. The income from treating eighty-two cases at $50 each would be $4,100. Among each 100,000 population in the state of Michigan in 1927, there were 2,200 babies born. If each of these babies had been immunized at only $3 each, the income from this practice in 100,000 population would have been $6,600.

"It is also to be noted that these data predicate only the immunization of the new-born, or an equivalent number of persons in the community. There are, of course, four times as many preschool children as babies, and ten times as many school children. The opportunity for increasing practice by carrying on immunization among the

preschool and school populations in the physician's clientele offers an almost unlimited field."

The Bulletin of the Philadelphia Department of Health of November 11, 1929, reports that 70,000 children were immunized against diphtheria during their recent campaign. In New York City it was reported in the November 2 Bulletin of the Health Department that during the first nine months of 1929, 165,000 children were immunized with toxin anti-toxin.

Members of the County Medical Society furnished the entire program for the monthly conference of the Pueblo County Health Association, March 3. That's neighborly.

In the publication of the Massachusetts State Department of Health, "The Commonhealth," Dr. Henry D. Chadwick states in an article on the Ten-Year Program for Children that since 1924 approximately 100,000 children have been examined by the Massachusetts Department of Public Health. An analysis of the available figures shows that when children begin school life 20 per cent are infected with tuberculosis, at age ten there are about 28 per cent infected and at fifteen approximately 35 per cent. It has been found that children are infected with the tubercle bacilli to the same degree regardless of nutrition or nationality, if they are exposed to an open case of tuberculosis. When there is definite contact with pulmonary tuberculosis, children are almost always infected.

The following is an extract from President Hoover's message to Congress, December 2, 1929:

"The organization of preventive measures and health education in its personal application is the province of public health service. Such organization should be as universal as public education. Its support is a proper burden upon the taxpayer. It cannot be organized with success, either in its sanitary or educational phases, except upon public authority. It should be based upon local and state responsibility, but I consider that the Federal Government has an obligation of contribution to the establishment of such agencies."

LIBRARY NOTES

EDITOR J. J. WARING, M.D.

BOOK REVIEWS

Handbook of Physiology. By W. D. Halliburton, M.D., LL.D., F. R. C. P., F. R. S., Emeritus Professor of Physiology, King's College, London; and R. J. S. McDowall, M.B., D.Sc., F. R. C. P. (Edin.), Dean of the Faculty of Medicine and Professor of Physiology, King's College. Eighteenth edition. With over 500 illustrations in the text, many of which are colored, and three colored plates. Philadelphia: P. Blakiston's Son & Company, 1929.

Professor Halliburton's successor at King's College has joined him as collaborator in the thorough revision which constitutes the latest edition of this excellent English text. Much new material has been added, but by rearrangement the book has been reduced slightly in size, mainly by reduction in anatomical detail, of which there remains more than in most American texts.

The book is a lineal descendant of Kirkes' Physiology, which went through thirteen editions under editorships of notables of St. Bartholomew's Hospital, prior to the first edition published under Professor Halliburton's guidance in 1896. With the thirty-one editions of this distinguished line of texts in hand, one might retread, in an absorbing manner, main steps in the advance of the arts and science of physiology since 1848.

Among the rewritten chapters may be mentioned, as examples, those which bring consideration of reflex action up-to-date, especially to admit of adequate treatment of postural and conditioned reflexes. Sections on the autonomic nervous system, speech, the control of the circulation, the carriage of carbon dioxide, the maintenance of body neutrality, vitamins, endocrine glands, and intermediate metabolism, are also for the most part new. Additions have been made on such subjects as the formation of the blood and the bile, test meals, blood groups, the polygraph, recent work on the spleen and on the control of respiration, and the effect of exercise on respiratory exchanges.

Although names of investigators are given, one looks in vain for references to literature sources.

E. H. BRUNQUIST.

The Medical Clinics of North America. (Issued serially, one number every other month.) Volume 13, No. 2. (Chicago Number, September, 1929.) Octavo of 232 pages with 61 Illustrations. Per Clinic year, July, 1929, to May, 1930. Paper, $12.00; Cloth, $16.00 net. Philadelphia and London: W. B. Saunders Company.

This volume of clinics is characterized by a choice of exceedingly practical medical subjects. Gastroenterology seems to hold the center of the stage. Drs. Fred M. Drennan and Frank Val Dez review the causes and treatment of esophageal obstructions. Dr. Walter L. Palmer, in his discussion of certain phases of the ulcer problem, brings out practical points in diagnosis and treatment. He seems to look with marked disfavor on treatment by subtotal gastrectomy. Dr. Jacob Meyer reviews, in text book fashion, the diagnosis of peptic ulcer. Dr. Eugene Traut presents a case with discussion of the treatment of Glenard's Disease (visceroptosis) by means of high caloric feeding plus the use of insulin. His ideas have

been used with success by other workers, and may prove to be a more satisfactory treatment than the common methods in general use.

Dr. Arthur R. Elliott discusses in random fashion, the annoying complication of epistaxis in cardiovascular conditions. Dr. C. S. Williamson presents a few mediastinal cases, especially aneurysms, with notes on diagnosis. Dr. W. W. Hamburger follows with four cases of bundle branch block, summing up the diagnostic clinical signs and symptoms plus electocardiographic tracings, Four cases of hypertension are presented by Dr. Nathan S. Davis, with a discussion of the significant electro-cardiographic tracings.

Among other special subjects, Chorea, discussed by Dr. J. E. Gerstley, and Objects and Methods of Treating Pneumonia, by Dr. Robert W. Keeton, deserve careful reading at the hands of every general practitioner and internist. These authors push aside the inherited conceptions of these two common maladies and call us back to basic facts.

There are other clinics presented in the field of neurology, dermatology, and pediatrics. On the whole, the volume will repay any doctor for an hour or two of selective reading.

C. F. KEMPER.

The Medical Clinics of North America. (Issued serially, one number every other month.) Volume 13, No. 3. (New York Number, November, 1929.) Octavo of 272 pages with 58 illustrations. Per Clinic year, July, 1929, to May, 1930. Paper, $12.00; Cloth, $16.00 net. Philadelphia and London: W. B. Saunders Company.

The first clinic by Mrs. J. W. Held and A. A. Goldbloom discusses, comprehensively, the functions of the gall bladder. Much of the newer experimental evidence of its concentrating and intrinsic emptying functions are cited. The authors conclude that the gall bladder is not a useless organ, that compensation follows cholecystectomy, that symptoms following cholecystectomy may occur if a normal gall bladder is removed; and, therefore, that the removal of this functioning organ upon merely a suspicion of dysfunction is to be condemned. The complete bibliography adds much to this timely monograph.

Drs. C. F. Fenney, Joseph Lintz, A. D. Jessup and Harlow Brooks, offer a clinic on perniclous anemia. They report a case cured by splenectomy and several by liver feeding. Certainly the authors do not mean to advise splenectomy as the treatment of choice since the advent of liver therapy!

Dr. George Drape presents a clinic on constitutional types as determinants in the probable disease by which a person will break. He studies the patient from the standpoint of heredity, growth and development, morphology, physiology, psychology, and immunology, and thus establishes his probable pathology before investigating his symptom complex. The discussion is thought-provoking but sounds like an impractical diagnostic procedure in routine work.

Dr. A. Benson Connon discusses the more common dermatologic conditions as seen in children.

Dr. Thomas J. Harris presents the social aspects of progressive deafness (otosclerosis). He makes much of the fact that the disease often becomes worse with child bearing; also, that the condition is occasionally inherited. These two facts constitute the social problem. He is nebulous in his discussion of cause, suggesting that often it is due to an "endocrine unbalance," but that is too vague to be helpful.

Dr. Jesse G. M. Bullawa presents a clinic on serum treatment of the pneumococcus pneumonias. He has fifteen types of pneumococci. He offers a more simple method of typing.

Dr. Harold E. B. Pardee emphasizes in his paper the importance of the etiology in the diagnosis of heart disease. Dr. Samuel Brock gives a neurological clinic with the presentation of two cases of parosmia, a subdural hematoma and an aneurysm of the intra-cranial portion of the left internal carotid artery.

The clinic of Dr. Herman Elwyn on the diagnosis and differential diagnosis of nephritis is of unusual interest and clarity. He accepts the newer classification of nephritis, nephrosis and sclerosis, and depends much on functional tests. Dr. Winfield Scott Pugh offers a vigorous didactic clinic upon that common and significant symptom, hematuria.

Diseases of the upper respiratory tract in bronchial asthma are discussed by Dr. M. A. Ramirz, followed by Dr. Horace S. Baldwin on the clinical aspects of chronic bronchial asthma. Neither paper presents any new data.

The discussions of Drs. M. R. Caro and T. J. Riardon, on the pathogenesis and treatment of varicose ulcers, ought to be of help to those unfamiliar with the injection method of treatment. The paper is clear and the method described is simple.

Other subjects presented are Tumor of the Vernus Cerebelli Projecting into the Fourth Ventricle, by Dr. H. R. Merwarth; The Role of the Leukocytes in Infections by Dr. Arthur Weiss; and Fever in Malignancy by Dr. Joseph Lintz (bibliography).

This volume contains a high percentage of well written, practical papers. C. F. KEMPER.

Disorders of the Sexual Function. By Max Huhner, M.D., Chief of Clinic, Genitourinary Department, Mount Sinai Hospital Dlspensary, third edition, 342 pages, Philadelphia: F. A. Davis Company, 1929: cloth, $3.00 net.

The author has sought to bridge a gap between the neurologists and the genitourinary specialists. The gap certainly exists, as does a similar gap between the neurologists and the gynecologists, and we must give him the credit for having perceived it and for the effort he has made to step into the breach. At the same time the reader can hardly fail to be aware of a certain lack of critical judgment in much of the content of this book. For example, when Dr. Huhner says that masturbators are shy and bashful, he might as well have said that shy and bashful people naturally tend to masturbate, seeing that the effort necessary for the more natural method of satisfying the sex instinct is unusually painful to them. Again, Groage's much simplified diagram of the nervous control of coltus is treated with an astonishing seriousness and made to explain pathological conditions just as though it were demonstrable truth. No help is given in regard to the psychiatric treatment of the various conditions dealt with—masturbation, impotence, vaginismus, dyspareunia, etc.—though some of the urological suggestions are worthy of attention. The whole outlook of the book represents a distinctly individual contribution. Taken critically, it is in places both helpful and suggestlve. J. ROSSLYN EARP.

Secretarial Notes and Comment

Edited by Harvey T. Sethman, Executive Secretary

DELINQUENT NOTICES

Notices will be sent during the first week of April to all members of the Colorado State Medical Society who have not up to that time been certified by their county secretaries as being paid-up and in good standing for 1930.

The Executive Office is pleased to report that the number of these notices will be much smaller than was predicted by those of less optimistic mien who feared the increase in dues would mean a serious loss in membership. But nevertheless a considerable number of members have so far neglected to pay 1930 dues to their county society secretaries.

It should be remembered that the county society secretary is the one to whom these dues should be paid, NOT the state secretary. The county secretary then transmits to the state secretary the State Society's share of each man's dues.

Remember—and help your friends to remember—that dues should be paid this month if membership is to be uninterrupted. The State Society is expanding its activities and its services to members every day; membership always was valuable, but physicians can less afford to lapse their membership now than ever before.

REPORTS OF MEETINGS

Officers of the State Society have long been convinced that the entire membership, as individuals, and each county society, as a group, would benefit by regular and comprehensive reports of county society meetings published in this department of Colorado Medicine.

Each county society was formally notified last autumn that these pages are open to reports of its meetings and other activities. Under ordinary circumstances the secretaries of the societies would be the logical ones to submit the reports after each meeting, since they keep the minutes. But in many cases county secretaries already carry a heavy share of their societies' burden of work, and it would be too much to ask this additional labor. Therefore it was suggested that each society consider the matter and appoint some other officer or member to the task.

To date only one local society has done this to our knowledge. Secretaries of a few other societies are reporting with reasonable regularity. The three or four largest societies have been conspicuous by their absence.

Will the members show enough interest in having their societies represented in these columns to take up the matter at their next meeting?

Board of Trustees

The March meeting of the Board of Trustees, Colorado State Medical Society, was called to order at the office of Dr. L. W. Bortree, treasurer, Colorado Springs, 8 p. m., March 15, by President William Senger. Others present were First Vice President John B. Crouch, Secretary F. B. Stephenson and Executive Secretary Harvey T. Sethman.

The executive secretary was directed to prepare amendments to the By-Laws for submission at the next annual session affecting a readustment of standing and special committees.

Recommendations of a certified public accountant for a quarterly report to the Trustees on the financial condition of the Society and status of the budget were adopted.

The secretary and executive secretary were authorized to negotiate for additional storage space in connection with the executive office in Denver.

A project for a special bulletin to the entire membership to outline established and contemplated services of the executive office was rejected as too expensive.

The executive secretary reported 736 paid members for 1930 to date. He reported that Boulder County, Lake County, Northwestern Colorado, San Luis Valley, Pueblo County and Weld County were slow in remitting State Society dues. It was directed that delinquent members be reported to the American Medical Association early in April instead of early in May as heretofore.

A form letter to county society secretaries for obtaining information about non-members was approved.

It was directed that all standing and special committees be asked for a report of their activities covering the first six months since their appointment.

The Wisconsin Medical Blue Book plan was discussed with a view to developing such a publication for Colorado. In view of the time and expense involved it was decided to refer the matter to the House of Delegates at the annual session.

It was directed that a monthly bulletin be issued to state and county officers between issues of Colorado Medicine, calling attention to activities of the executive office and the Society at large.

The Trustees adjourned subject to call of the president.

MEDICAL SOCIETIES

Larimer County Medical Society

The March meeting of the Larimer County Medical Society was held at the Anderson Cafe, Loveland. After an excellent dinner the meeting was called to order and the minutes were read and approved. A communication from the state executive secretary regarding unfavorable narcotic bills pending before Congress was read. The secretary was directed to write to Congressman Timberlake requesting him to use his influence in defeating these bills and to sign the names of members of the Society to the same.

Dr. W. Bernard Yegge of Denver gave a most interesting talk on Periodic Health Examinations. The discussion was led by Dr. W. A. Kickland and followed by Drs. Humphrey, Little, Johns, Cary, Haughey, McFadden, Gasser, and closed by Dr. Yegge. On motion of Dr. Hartshorn the Society went on record endorsing the periodic health examination and directed that a committee be appointed to consider fees and advertising and to report at the next meeting.

A talk on Collections and Financing was given by Mr. Joe Williams of Greeley, representing the American Professional Men's Credit Bureau, who outlined a proposition he had for sale. These talks were discussed by Drs. Brown, Hartshorn, Cram, Kickland and Brownell.

LOWELL B. LITTLE,
Secretary.

Northeast Colorado Medical Society

Dr. William A. Kickland of Fort Collins, president-elect of the Colorado State Medical Society, was the guest of honor at the March meeting of the Northeast Colorado Medical Society, held March 13 at the Hotel Graham, Sterling. Dr. Kickland read a paper on "Periodic Health Examinations, "which evoked a good discussion. The meeting was preceded by a dinner at the hotel.

E. P. HUMMEL, Secretary.

COLORADO OPHTHALMOLOGICAL SOCIETY

October 12, 1929
Dr. C. E. Walker presiding

Retinal angiosclerosis

Dr. E. E. McKeown exhibited a case of sclerosis of the retinal vessels.

Discussion. Dr. William C. Finnoff explained that the sclerosed vessels showed a blood stream in their peripheral portions, therefore the vessels involved, although some of them look like white cords, must be patent. The exudates were superficial, and were very likely varicose nerve fibers.

Dr. Melville Black called attention to Pinés work in regard to angiosclerosis which had been recently published in the British Journal of Ophthalmology. Dr. Black was of the opinion that the best information in regard to general arterioscleros is obtained from a careful study of the condition of the fundus vessels.

Enlarged conjunctival vessels

Dr. Neeper brought a woman, twenty-eight years of age. Since 1924 two large, nearly parallel vessels of the conjunctiva, extending from the nasal limbus to the caruncle of the left eye, had been observed. These vessels were conspicuous and the patient consulted with regard to having them removed. The following questions arose in Dr. Neeper's mind: (1) Are we justified in interfering for cosmetic reasons? (2) Is their increasing size evidence of possible trouble within the globe?

Discussion. Dr. William C. Finnoff stated that he had seen this patient five years ago and at that time the size of the vessels were within physiologic limits. He mentioned the possibility of sarcoma of the ciliary body, but advised that it was worth trying to obliterate these vessels by the use of the electric needle.

Dr. E. R. Neeper thought that perhaps the upper of the two vessels was an artery and that it might be advisable to ligate it, perhaps back under the caruncle.

Chronic uveitis

Dr. E. R. Neeper also showed Mr. E. S. M., laborer, age 44. The left eye had been struck by a piece of flying rock on September 21, 1929. The injury was very painful and the eye "blinded" for some minutes, but the patient continued work for the remainder of the day on which he was injured. The eye became increasingly painful and on September 25 he sought relief. At this examination the bulbar conjunctival vessels were markedly injected. The pupils were equal in size, but the left reacted very sluggishly to light. The aqueous was slightly hazy, and there were deposits on the posterior surface of the cornea. There was also noted some light-colored debris in the vitreous, but other than this the ophthalmoscopic examination was negative. The eye was x-rayed for the possibility of a foreign body and this examination was negative. The teeth were x-rayed and one involved tooth was extracted. The x-ray picture of the sinuses showed a slight shadow in the left ethmoid. The Wasserman was negative, although there was a definite history of lues in 1917. The vision of the right eye was 20/30 and of the left eye 20/80.

Dr. Neeper raised the following questions: (1) Should luetic treatment be insisted upon? (2) Is there justifiable evidence for an operation on the ethmoid cells?

Discussion. Dr. Melville Black suggested the use of milk intra-muscularly, and if this fails to bring about improvement, the use of typhoid vaccine was advised.

Dr. Neeper said that he would use mixed treatment in spite of the negative Wassermann.

Interstitial keratitis

Dr. Neeper's last case was one of bilateral interstitial keratitis. This patient, C. D., age nineteen, claimed no previous ill health or eye trouble. He was examined first on July 15, 1929, and stated that three weeks previously he had been in an automobile accident, and that following this accident he noted very poor vision in the right eye. There was much photophobia and epiphora which gradually became worse. The right eye evidenced a definite intersititial keratitis and in six weeks the left eye had developed a severe keratitis.

Dr. Neeper showed this case because it emphasized the necessity for careful investigation regardless of history, and also because not infrequently a case of interstitial keratitis, due to inherited syphilis makes its first appearance after some trauma.

Discussion. Dr. Melville Black thought that the teeth were indicative of inherited syphilis.

Dr. William H. Crisp thought that a direct corneal injury would be more likely to precipitate interstitial keratitis than a remote injury which was probably the type suffered by this patient. In all cases of interstitial keratitis he advised complete rest in bed.

NOVEMBER 16, 1929
Dr. Frank R. Spencer, presiding

Preretinal hemorrhage

Dr. James M. Shields showed Mr. A. W. W., age twenty-six. His past history was of no importance with the possible exception of an apical tuberculosis which had really never been confirmed. The patient stated at his first consultation on November 15, 1929, that he had never had any ocular trouble. At about noon on the above date he had lifted a weight of about fifty pounds, and half an hour later he noticed a red spot projected before the left eye.

Ophthalmoscopic examination showed a sausage shaped hemorrhage, sharply demarcated, projecting from the region of the macula and extending temporalward. The anterior tip of this hemorrhage extended into the vitreous about two diopters. After forty-eight hours this sausage shaped tumor had become hour glass in shape due to a constriction at its center. At this time the upper half of the mass was bright red and the lower half a rather darker red. At the end of four days the lower anterior tip became bifurcated, and presented two distinct knobs. The vision at the time of the last examination was 6/10.

Discussion: Dr. Edward Jackson examined this eye on the day of the appearance of the lesion. He felt that the hemorrhage projected about one diopter in front of the smaller vessels that were near to it in the region of the macula. He believed that the fovea was entirely covered and that therefore the possibility of choroidal hemorrhage must be kept in mind, that is, a hemorrhage of the choroidal capillaries which had burst through the lamina vitrea. As to the constriction noticed after forty-eight hours he suggested the possibility of a contraction of the clot.

Dr. William T. Brinton suggested the possibility of an aneurism of a branch of the superior temporal vein, which was the vessel in question in regard to the lesion.

Dr. William H. Crisp stated that in his conversation with the patient earlier in the evening the patient stated that the image as he had seen it drawn on the board "is just the way the trouble in my eye looks to me."

Plastic repair of ectropion

Dr. William C. Finnoff exhibited N. S., a boy of thirteen years. In 1924 the child had become ill with multiple discharging skin lesions of the face, body and extremities. These lesions subsided after several months, but recurred twice again with even greater severity. During the last exacerbation in 1926 the boy was admitted to the Colorado General Hospital where a diagnosis of pemphigus with pyogenic granuloma was made. At this time the lids were involved, but not the conjunctivae. The disease healed after many months, with resultant scarring and marked cicatricial ectropion of both lower lids. On September 19, 1929, a repair of the left lid was attempted. The lid was dissected free and the lid margins united by the Wheeler bridge type of tarsorrhaphy. The denuded area below was covered by epidermal grafts taken from the thigh. The post operative result was an improvement in his condition.

Discussion: Dr. Frank R. Spencer congratulated the operator on his result in this case.

Tays chroiditis

Dr. William M. Bane showed Mr. J. M., age thirty-two, who was a patient at the National Jewish Hospital for tuberculosis. The patient consulted because of a twitching of the lower left lid which had occurred at irregular intervals over a period of two months. The vision in each eye was 5/5. On August 28 his pupils were dilated with homatropine for examination and refraction. The fundus examination revealed an extensive area of yellowish-white dots. These dots involved principally the maculae but extended beyond the limits of the maculae in a wide circle. They were diagnosed as colloid excrescences or drüsen.

DONALD H. O'ROURKE,
Secretary.

Obituary

Leman Gibbs Clark

Dr. Leman G. Clark, former president of the Garfield County Medical Society, died in Glenwood Springs, March 1, 1930.

Dr. Clark was born May 23, 1850, in Livonia, N. Y. He was married March 7, 1880, to Miss Carrie Kinert, and plans were under way for celebration of their golden wedding anniversary when death called him. He was graduated in 1884 from Rush Medical College, Chicago, and after two years' practice in Iowa he moved to Aspen, Colo. After a few months in Aspen he became a resident of Glenwood Springs, his permanent home.

Besides his deep interest in organized medicine, Dr. Clark was active in municipal affairs, serving several terms as councilman and mayor of Glenwood Springs, and many years as coroner of Garfield county, a position he held until his death. An ardent lover of sports, he was known as an outstanding baseball player in his younger days, and later as an ardent fan and annual attendant of the world series games. He was an active member of several Masonic bodies and the Glenwood Springs Episcopal Church.

He is survived by his widow and one brother, James A. Clark of Interlaken, N. Y.

John William Morgan

Dr. John W. Morgan, for the past sixteen years inspector for the State Board of Health, died from a heart attack Feb. 22. He had been a member of the Medical Society of the City and County of Denver since May 1, 1917.

Dr. Morgan was born in Ghent, Ky., in 1863, and was graduated in 1890 from the University of Kentucky School of Medicine. Three years later he married, and his widow is his sole surviving relative. He practiced many years in Harriman, Tenn., and moved to Colorado in 1904. He entered general practice in Denver and developed a great interest in public health work, which eventually led him to his work with the State Board of Health.

Dr. Morgan resigned from the State Board of Health a few months ago because of failing health.

Hygeia Gift Subscriptions

The Woman's Auxiliary of the Colorado State Medical Society has just made a gift of eighteen six-month subscriptions to "Hygeia" to the winners of the rural school districts in their sale of Christmas seals. This contest is put on by the Colorado Tuberculosis Association and as prizes our Auxiliary presents these gifts. The teachers receive many good ideas in teaching health in these rural communities, and their letters of appreciation have been most gratifying.

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE AND HOSPITALS

It is essential that a medical school of this day shall have an adequate source of clinical material for teaching purposes. The hospitals connected with this institution care for one part of this need. The ambulatory cases are supplied by the Out-Patient Departments of the two hospitals.

The new Out-Patient building, two stories in height, is directly connected with the other units of the institution, but is distinct, and designed for its purpose. In it are numerous clinics; medicine, surgery, pediatrics, eye, ear, nose, throat, obstetrics and gynecology, genito-urinary, dermatology, orthopedics, neurology and dental. In addition, laboratories, social service and a pharmacy occupy suitable quarters under the same roof.

The Out-Patient Department cares for the sick who do not require hospitalization, and who cannot pay a private physician. The majority of cases come independently, but a considerable number are referred by physicians. Individuals not entitled to care are refused admission by the Social Service Department, and these refusals total approximately 10 per cent of those who seek treatment.

During the past six months, a total of over 21,000 cases or 144 per day have been admitted. Of these, roughly 13 per cent are new cases. Cases not referred by a physician must show a financial status below a certain scale, which is based on necessary living requirements, also dependents.

In the same period approximately 500 individuals were advised hospitalization either in Colorado General or Denver General Hospital. In addition approximately 200 persons from ear, nose and throat clinics had tonsillectomy and adenoidectomy operations performed in Colorado General Hospital.

To care for these people, and to direct the activities of the Senior and Junior classes of the School of Medicine in the various clinics, requires a large staff. In a year over 100 different physicians are on service during clinic hours. In addition the full time members of the faculty of the School of Medicine and a corps of technicians are utilized.

An agency of much importance in the teaching of obstetrics is the Visiting Nurses' Association. Its nurses care for the obstetrical cases on the Out-Patient service, urge prenatal care, bring those women without means of transportation to the clinic at stated intervals, assist the physician with the examinations, and direct the post partum nursing of those delivered in the homes. The medical students closely follow these cases and learn many points of nursing care which may be useful to them in their own practice.

A comprehensive history of each case is kept in the record room, available at any time to the staff and others entitled to such privilege.

The pharmacy is in charge of a registered pharmacist and prescriptions are sold to the patients at cost. A charge to cover the cost is also made for x-ray pictures and some other procedures, but no needy person is refused any treatment or care deemed necessary. These cases are cared for by the Social Service Department, about which more will be told in the near future.

Connected with the Colorado Psychopathic Hospital is an Out-Patient Department for mental and psychiatric cases. A closed staff of ten full time physicians connected with the hospital conducts the activities of the clinics, and directs the students of the School of Medicine. Close co-operation exists between this Out-Patient Department and other departments of the entire group, and consultations are asked for and given freely by specialists, as required.

During 1929 nearly 2,000 admissions, of which over 600 were new cases, were reported by this department. Over half of the new cases were children.

Approximately half of the cases are referred by physicians, or come of their own initiative. The same rules of admission given for the Out-Patient Department of the Colorado General Hospital apply to this department. The remainder of the cases admitted are referred by various agencies, and are chiefly children.

The agencies connected with the public schools refer many cases of mental retardment and unruly conduct in children; the juvenile courts also refer certain of their problem cases. In addition the social agencies of the state call on this department for help with individuals in their care.

To facilitate a systematic study of each case four clinics are held each week at which the medical students attend and take part, under supervision.

New cases among children are given a comprehensive physical, mental and psychiatric examination, with laboratory procedures as indicated. Consultations, if wished, are obtained. Adult cases are followed in the same systematic manner.

One day is set aside for the treatment of luetic cases with neurologic involvement. The new procedures of treatment, chemotherapy employing various organic arsenical compounds, with other therapeutic measures are employed, and malarial inoculation advised in certain cases, after hospitalization.

An important part is played by the Social Service Workers who study home conditions, environment, and other outside factors which are often so important in cases cared for in this Out-Patient service. Directions and advice of these workers supplement that given by the staff in the clinics, and are at times essential to obtain beneficial results.

This brief sketch of the activities of the Out-Patient Departments show the opportunities which are available for teaching clinical medicine of ambulatory cases to the medical students, under the direct supervision of a competent staff; that men with a proper medical training may be turned out to care for our citizens.

E. R. MUGRAGE.

WOMAN'S AUXILIARY

Denver County

The regular meeting of the Woman's Auxiliary to the Medical Society of the City and County of Denver was held at the Denver General Nurses' Home, 250 West Eighth avenue, Monday, March 17, at 2:30 p. m. After the business meeting Dr. and Mrs. William Wiley Jones showed their very interesting picture of England and Helen Cuno Colageras, dean of the Cuno School of Music, presented a group of piano solos.

WYOMING SECTION

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EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT

SMALLPOX

The history of medicine and its achievements presents nothing more certain and striking than the terrible epidemics which have occurred in the past caused by the loathsome disease, smallpox and its certain prevention by vaccination.

The record made by the German army in its 100 per cent vaccination and almost complete freedom from smallpox is a tribute to German thoroughness in the prevention of disease. The death rate, varying with the different epidemics, and the disfiguration of many of those who survive should bring all sensible people to insist on the repeated vaccination of every citizen. But it doesn't do this.

Smallpox could and would be wiped out of America if we could vaccinate every child at two, four and ten years of age, or not allow them to enter schools unless so vaccinated.

At present we cannot do this. There have been just enough brainless members of the past legislatures in Wyoming, that we can compel vaccination only in the presence of an epidemic. Our present law has been so construed by the courts.

It would be just as sensible to make a law that the fire department should not attempt to put out a fire or prevent one until half the city in which the fire department existed had burned down. Then, of course, provide that the fire department should try in a half-hearted way to put out the fire. Or pass a law that a sheep man should not shoot one coyote but wait until one hundred coyotes begin to kill the sheep in one certain band of sheep. It has been said by some: "If the people of the state want to have smallpox why not let them have it?" That idea might be all right if only fools took smallpox, but how about the many innocent children who would die or be disfigured forever if such a policy was carried out?

The Wyoming State Medical Society should bend all its efforts in the next meeting of our legislature to get a law passed which has teeth in it and then the State Board of Hea'th should see that the law is enforced.

Any person so devoid of gray matter as to be opposed to such a life-saving plan ought to be kept out of our legislature and out of the governor's chair. Most states have such laws. Wyoming is entitled to such a law, and we should insist on having its citizens protected and saved.

At the annual meeting of the State Society in Sheridan next July such a plan will be presented for endorsement of the medical profession of Wyoming. We can secure such a law and enforce it with the united effort of the medical profession assisted by the people who have brains and the welfare of Wyoming at heart.

Certain as that night follows the day will we see a dreadful epidemic of smallpox all over Wyoming in a few years if such a law is not passed and honestly enforced, as not one child out of ten is now vaccinated before entering school. Such is Wyoming's disgrace.

Let us all do all we can to avoid such a terrible condition just around the corner.

E. W.

CORRESPONDENCE

The following letter is published as pertinent comment in connection with the two papers on "Tick Borne Infections in Colorado," written by Frederick E. Becker, M.D., Denver, and published in the February and March issues of Colorado Medicine:

Riverton, Wyo., March 7, 1930.

Frederick E. Becker, M.D.,
Denver, Colorado.

Dear Doctor:

The last two issues of Colorado Medicine have been interesting to me because of your papers on Tick Borne Infections in Colorado. This subject is one to which I have given considerable attention, and I have compiled most of the statistics on the same in Wyoming.

Referring to what you call Colorado Tick Fever and as to whether this is an infection with an attenuated form of the virus, I wish to call attention to a paper read by me before the Conference of Health Officials of the Rocky Mountain States and Provinces at Missoula, Montana, on April 5 and 6, 1923.

This paper is published in the Montana Health Bulletin Special No. 26, June, 1923, under the title of Incidence of Rocky Mountain Spotted Fever in Wyoming. The third paragraph in this bulletin, page 26, refers particularly "to other medical and surgical conditions presenting themselves to the people of Wyoming that are due to the bite of ticks, other than Spotted Fever. Cases are on record, I have attended them myself, whereby people have been so numerously bitten by ticks that several days of illness resulted with marked constitutional symptoms which closely resemble the prodromal stage of Spotted Fever, but not by the characteristic rash. As to whether these are cases of a mild infection that probably will render immunity to the person affected, I am unable to say, but I do think it is within the range of possibility."

The discussion that followed this statement created considerable comment, the question as to whether it was due to the virus of an attenuated form was thoroughly taken up by Drs. Spencer, Parker and Noguchi, it was not generally considered that this was so, nor was it, so far as I can remember, accepted as to whether my theory as to a conferred immunity to such persons so affected was conclusive. Since the discovery of the vaccine I have had the serum of two similar cases checked up closely following such sickness with no positive results as to whether such attacks conferred immunity.

For some reason in the last few years I have seen fewer of these cases which I feel sure are what you call Colorado Tick Fever, but I am positive that such a condition is not a separate entity of Colorado but is native also to Wyoming. I certainly intend to check in future all such cases by sending serums from individuals to the Montana laboratory. In one case already sent the serum showed immunity, the other did not.

Two years ago through our local reporting system I started a questionnaire, showing the geographical origin of the bite, and checked it against mortality and find some interesting conditions regarding the same so far, but too early to be conclusive for either Spotted Fever of "Colorado or Wyoming Tick Fever" insofar as to whether certain areas are constantly malignant in the nature of the infection there.

I would also refer you further to this same paper read at this same conference. In the paragraph on page 26, immediately following the previous quotation I wrote, "Frequent cases of sloughing of the skin at the site of the bite have occurred, and have been reported, followed by marked lymphatic involvement and complications. I have thought that these probably might be cases of tularemia and I have attempted to do some work along this line. I firmly believe that investigations of this nature would definitely determine that these cases are without doubt tularemic in nature and that the tick can and does transmit Bacillus tularense."

Needless to say this part of the paper also received considerable attention, particularly from Drs. Spencer and Parker; it was generally conceded that this was the first statement of this condition or suspicion ever mentioned in connection with the tick as a causative factor in the morbidity of tularemia. Both of the above took the matter up and sent ticks to Dr. Francis at the laboratories in Washington, with the result that my theory was proved conclusively. You will note the bibliographies of all publications of U. S. Health reports regarding the tick as a causative factor in tularemia were published subsequent to the date of this meeting.

I might further state that never have I seen any comment by these workers giving me any credit for the first suggestion of this. I recently visited with Dr. Parker about a year ago, and he stated it should have been done.

I thought that this letter may be of interest to you, as your articles have been of interest to me, and it may bring you some light upon the probable occurrence of what you call Colorado Tick Fever as also being prevalent in Wyoming.

Very truly yours,

ALBERT B. TONKIN, M.D.,
President Wyoming State Board of Health.

CODY, WYO.

Smallpox is reported in the Cody and Meeteetse districts. Dr. Mills, the county health officer, has been kept very busy looking after these cases.

MISTAKEN DIAGNOSIS OF APPENDICITIS

L. HARMON WILMOTH, M.D.
LANDER, WYOMING

Many conditions have been mistaken for acute appendicitis, such as: renal colic, Dietl's crisis, acute intestinal obstruction, cholecystitis, salpingitis, Psoas abscess, incipient pneumonia, early typhoid, and luetic crisis. My recent experience brings up another possible pit-fall which is not usually mentioned and which is of such unusual interest that it will bear reciting. Most of us believe that such errors could never really happen to us, and yet they do. However, we sometimes learn more by analyzing and studying our mistakes than our successes.

CASE REPORT

Late in the afternoon of Feb. 9, 1929, a young man, 20 years of age, pure-blood Indian, was rushed into town as an acute surgical emergency. He was doubled up with pain in his abdomen and too sick to come up to the office for an examination; so I sent him on out to the hospital. A history was difficult to get because of the inability of the patient to speak English. His chief complaint was intense pain in the lower right abdomen. Two days before, he had vomited once and had noticed a vague discomfort in the lower abdomen. He had not eaten since, and had had no evaculation for two days. The discomfort had gradually developed into agonizing pain which made the patient writhe and break out with beads of perspiration. His temperature on admission to the Hospital was 102.4 degrees, pulse 156, regular but rather weak, respiration 36. Examination revealed a young Indian male of strong muscular build and good state of nourishment lying in bed groaning and apparently in great pain. Head and chest were negative. Attention was drawn at once to the abdomen. The patient pointed the site of pain to be in the L. R. Q. at McBurney's point. Examination revelaed a board-like rigidity of the L. R. Q. with marked tenderness and pain on pressure. No distention, tumors, hernias, or visible peristalsis. The limbs were negative, except the ends of the toes of both feet, which had been frozen about two weeks before. The ends were necrotic; but were shriveled, dry, and apparently free of infection. Urine examination: 1.028, acid, cloudy, albumin and sugar negative, microscopic negative. Blood count: 17,250 leucocytes per cubic mm., 85 per cent polys. The case was diagnosed: acute appendicitis. A colleague agreed in this diagnosis and immediate operation was decided upon. The patient was given morph. gr. ¼ atropine gr. 1/150 per hypo, an S. S. enema, abdominal prep.; and then rushed to the operating room. Ether anaesthesia. Right rectus incision. The opened abdomen presented no free pus, adhesions, or inflamed tissues. The appendix was located and delivered through the wound. To my very great chagrin, it was perfectly normal with no trace of pathology whatsoever. Further exploration of the abdomen revealed normal gall-bladder, stomach, pancreas, intestine, with no obstruction. The appendix was quickly removed and the abdomen closed. The patient stood the operation well and was returned to his bed in good condition, P-120, R-30. His condition even seemed improved for a few hours until he was out from under the effects of the anaesthetic. He was given a dram of sod. bromide in a pint of starch-water by proctoclysis q 4 hrs. and M. S. gr. ¼ q. 6 hrs. per hypo p. r. n. for pain. During the night the patient woke up frequently complaining of abdominal cramps. The following morning his condition was worse, T-103.6, P-140, R-30. He was distressed by irregular seizures of severe abdominal pain, apparently colicky in nature. The entire abdominal wall was hard and tender to pressure. There seemed to be a moderate degree of rigidity in his neck. Further examination revealed that his entire spine was held rigid by a spastic contraction of the back muscles. Abdominal reflexes were increased, Kernig's sign was positive on both sides, the knee-jerks were hyperactive, no ankle-colonus, Babinski negative. Eye grounds and reflexes were negative. A spinal puncture was performed: spinal fluid under increased pressure, clear and colorless, white cell count-7 per cubic mm. Inquiry, through an interpreter, brought out the fact that two weeks previously, when the patient had frozen his toes, he had received no medical care; but had merely returned to the warmth of an Indian hut. Since he could not wear his shoes, he had walked around bare-footed and with no covering for his toes (the Indian hut had the customary bare ground for a floor). The case was diagnosed: Tetanus, with the frozen toes as the portal of entry. No other possible wound of entry could be found. Tetanus antitoxin was given as follows: 10,000 units intraspinally and 5,000 units intravenously. By the afternoon of the second day in the hsopital, the patient began to develop the more typical picture of tetanus: T-104, P-148, R-46, in great pain not entirely relieved by morphine, sweating profusely, seized by periodic tetanic spasms involving the abdominal, back, and neck muscles. On Feb. 11 opisthotonus had developed, the tetanic spasms were more lasting, and stiffness of the jaws made swallowing difficult, T-102.4, P-130, R-32. He was given luminal grs. 3, p. 4 hrs., and tetaus antitoxin 15,000 units intraspinally, 10,000 intravenously. Feb. 12 the patient was definitely improved; but no more antitoxin was available. The next day he was worse, lips cyanotic, swallowing very difficult, T103, P-136, R-44. Antitoxin was given 7,500 units intravenously and 1,500 intramuscularly. On Feb. 14, 9,000 more units were given intravenously and 3,000 intramuscularly; but it was too late. The patient expired by circulatory collapse at 3:20 p. m. All told, he had received 61,000 units of tetanus antitoxin.

Conclusions

(1) This case proves again the importance and value of a complete case history. Here the physical examination and laboratory findings presented an absolutely perfect picture of acute appendicitis; but better history would have possibly corrected the error. (2) Tetanus is a rare infection in

midwinter and in the Rocky Mountain states it is infrequent in any season; but it can occur here even in mid-winter. (3) Prophylaxis did not enter into this problem; but the case suggests that frozen toes may well be added to the possible sites of tetanus infection. And (4), small town drugstores should be demanded to stock more adequate supplies of tetanus antitoxin, including a few 20,000 and 15,000 unit doses. Most of them merely carry a few of the 1,500 unit prophylactic doses, which are as good as nothing in the treatment of active tetanus.

Obituary

Thomas Elder Marshall

Dr. Thomas Elder Marshall, member of the Sheridan County Medical Society, died March 3 in San Antonio, Texas, following about a year's illness. Dr. Marshall was born in Yellow Springs, Ohio, in 1863. He graduated from Antioch College, Yellow Springs, with the degrees A.B. and A.M. in 1893. He completed his medical course in the Ohio Medical College at Cincinnati in 1902. He was married to Miss Florence Seward of Dayton, Ohio, in 1899. He first practiced in Dayton and about twenty-five years ago moved to Sheridan, Wyoming, where he has been in active practice up until about a year before his death. He has been the honored president of the Sheridan County Medical Society, chief of staff of the Sheridan County Memorial Hospital. He was a member of the Wyoming State Board of Health and was county health officer, which position he was forced to give up on account of his health.

He is survived by his widow and one son, Thomas Elder Marshall Jr. E. W.

WYOMING NEWS NOTES

CASPER, WYO.

The Natrona County Medical Society has arranged for monthly dinner meetings on the plan of service club meetings. This may prove to be a very helpful arrangement and if it works out satisfactorily may be adopted by other societies in the state.

Dr. T. J. Riach is still confined in the Fitzsimon's Hospital in Denver, suffering with a phlebitis of the right leg. His wife has also been ill but is now able to be up. The members of the Wyoming State Medical Society extend their sympathy to Dr. and Mrs. Riach.

Dr. M. J. Nolan has returned from Rochester, Minnesota, and has resumed his practice.

RAWLINS, WYO.

Councillors Dr. H. L. Harvey of Casper and Dr. J. H. Goodnough of Rock Springs recently visited Rawlins and talked over the possibility of organizing a county medical society in Carbon county. We hope that this can be accomplished.

MOORCROFT, WYO.

Dr. Fitzsimmons of Omaha recently arrived and opened an office in the back of the Moorcroft Pharmacy for the present time. This office was formerly occupied by Dr. E. T. Gaule.

BUFFALO, WYO.

Dr. W. J. Knebel has sufficiently recovered from his infected hand to resume part of his practice.

There are just thirteen doctors in the state of Wyoming who paid their last year's dues and who have not yet paid their 1930 dues.

Out of our high regard for these members of the profession we are not at present publishing their names, so if you are one of the thirteen you had better send the secretary your check for $10.00 in order to continue to obtain all the blessings that such an organization showers upon you. We want to equal last year's record in having 100 per cent membership paid up. If you are one of the thirteen you'll have to hurry to get your money in.

"Health" must not be sold in bottles

"Health" cannot be sold in bottle, box, or bag, as food or drug preparations for animals, says Dr. H. E. Moskey, veterinarian of the Food and Drug Administration, the organization of the U. S. Department of Agriculture which enforces the Federal Food and Drugs Act. "Any preparations found in interstate commerce, with the word 'health' used in the name or on the label in such a way as to indicate that the preparation has curative properties for ailments of animals, is in violation of the Federal Food and Drugs Act," says Dr. Moskey.

In December the courts rendered a judgment in favor of the Department of Agriculture in a case against a preparation called "Liquid Hog Health," in which the government alleged that the article was misbranded.

Quality of milk influences demand

"An important factor that influences the limit of profitable production is the quality of our dairy products," says the Department of Agriculture. "Quality has a definite relation to demand. The production of a clean, wholesome, safe supply of milk is very largely the problem of the producer. It has been estimated that every year approximately $40,000,000 is lost to the dairy industry through low-grade milk and cream, and much of this loss is suffered by the farmer.

"The producer of dairy products should be interested in doing everything possible to insure the delivery of a good wholesome safe product to the consumer. In far too many cases the producer of market milk waits for the milk inspector to inform him how to produce clean milk. In many other cases the producer objects to certain rules that should be followed if clean milk is to be produced.

"The demand for dairy products will never reach its highest point until the product offered for sale is of the highest quality. The dairymen should be the leaders in an effort to produce a clean, wholesome, safe milk supply regardless of whether they produce milk for direct consumption or for manufacturing purposes. Milk that is unfit for consumption as fluid milk by the city consumer or by members of the farm family should not be used in the manufacture of any dairy product."

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EDITORIAL NOTES AND COMMENT

THE PREVENTION OF SYPHILIS

The control of the venereal diseases is the outstanding public health problem of today. Their cost to the nation in lives and in other forms of wealth cannot be accurately computed but is certainly enormous. It has been estimated[1] that 10 per cent of all deaths are attributable to syphilis and that one consequence of this disease, insanity alone, costs us $500,000,000 a year. What unpardonable waste!

There are three methods available for the prevention of syphilis any one of which should suffice to rid us of this plague were it pursued with sufficient resolution. The first of these is preventive disinfection of the male. Almost a quarter of a century has passed since Metchnikoff and Roux demonstrated experimentally that the treponema pallidum can be killed on the surface of the mucous membranes by the inunction of mercury ointment. Yet text books on public health are still being published which do not even mention this fact and its administrative application is almost negligible. The value of preventive disinfection was, however, well proved in the armies of England and of the United States during the war. A conservative estimate[2] of its effect in the American army states that the cases of venereal disease were reduced from one in thirty exposures to one in ninety. On the results obtainable by self-disinfection, when conscientiously applied, we quote from the late Sir Archdall Reid[3]:

> In 1917 a surgeon in charge of about 2,000 troops in Portsmouth thought that the results achieved by the ablution rooms might be bettered if the men were taught to disinfect immediately after risk had been incurred. He had no disciplinary power, but he explained the matter and advised the men to carry disinfectants. The results surprised him. For half a year not a single case originated among the instructed men. During twenty-eight months seven men were infected, not one of whom had followed instructions. The rate of infection was 1.5 per 1,000 per annum. In the garrison generally it was 92.

Since the war numerous attempts, with strong medical support, have been made to secure the use of this method of prevention on a national scale in England[4] so far without success.

Although syphilis is more prevalent among males than among females,[5] the promiscuous female is a more important source of infection than the promiscuous male. The second method of prevention consists in the discovery and control of this source. This has been the object of the segregation and medical supervision of prostitutes, a method

[1]Moore, H. H.: Public Health in the United States, New York, Harper and Brothers, 1923, p. 95.

[2]Ashburn, P. M.: Military Medicine, Chap. 18 in Nelson's Loose Leaf System: Prevention of Disease, Vol. 2, page 424.

[3]Reid, G. Archdall: Self-disinfection in the campaign against venereal disease, Internat. Journ. of Public Health, 2:591 (Nov.-Dec.), 1921.

[4]See Bayly, H. W.: Venereal disease: its prevention, symptoms and treatment, Philadelphia, F. A. Davis Co., 4th (American) edition, 1930, Chap. 1. Prevention.

[5]Parran, T. Jr., Smith, W. C., and Collins, S. D.: Venereal Disease Prevalence in 14 Communities, Venereal Disease Information, Vol. 9, No. 2 (Feb.), 1928. The rate for males was found in this study to be 1.56 that for females.

technically described as reglementation and one that is still relied upon in some countries of Europe and in the East. The failure of reglementation is now so generally admitted that we shall devote no space to a recital of its numerous defects. The most hopeful modification of this method which has come to our attention is that now in force in New Jersey[6]. By this method carriers, both male and female, are brought to the attention of the State Bureau of Venereal Disease Control and are promptly placed under treatment. However, before this method could function effectively in Colorado there would have to grow up a new attitude towards the reporting of venereal disease.

The third method of prevention is the prevention of promiscuous sexual intercourse. Here the eynic will shrug his shoulders, and well he may. The breakdown of authoritarian morals and the spread of a knowledge of methods of contraception, good, bad and indifferent, combine to multiply the difficulties of our task. Yet every lover of humanity should bend his efforts to its accomplishment, for more than the prevention of syphilis depends upon our success. How shall we proceed? Methods of repression will not help us. Chaperonage in this day of automobiles, telephones and co-education cannot be enforced. The appeal to fear is ineffective: we have only to carry our minds back to our own student days to realize how little influence a knowledge of the horrors of venereal disease may have upon behaviour. Our appeal must be to a positive ideal: to the happy prospect of successful marriage at a not too distant date. The relations between the sexes must be idealised but not sentimentalised. The success of marriage depends upon intelligent selection and a knowledge on the part of each of the technique of sexual comradeship. If marriages are made in heaven, then heaven must be here and now and we must assist in the factory. We cannot do this without sacrificing some of our sex prejudices and some of our economic prejudices, too. But the end is worthy of sacrifice. The vast majority of young men and women look upon irregular sexual relations as a poor second best. They will reach eagerly for the satsifaction of a greater happiness, if we will but make it attainable.

[6]Patterson, R. S.: Supervising venereal disease carriers. Am. J. of Public Health, 18:971 (Aug.), 1928.

THE CONTROL OF CONTRACEPTION

It is well known to our readers that the federal law forbids the use of the mails to all matter related to a knowledge of contraception. It is, perhaps, not so commonly realized that transmission by express companies and other common carriers is likewise forbidden. Theoretically it is impossible for physicians to obtain the materials necessary for the practice of contraception, or for medical journals to print articles on the technique of contraception. That such articles have, in the past, been both printed and circulated is to the credit of medical editors whose immunity from prosecution is to the credit of the legal profession. Nevertheless the law needs amendment not only because of the ever present possibility of some scandalous prosecution but also because the repressive tendency of the law discourages research and the spread of a knowledge of modern methods among the profession while it promotes tne use of dangerous and relatively useless methods by the ignorant laity.

Although the gynecologists have officially requested amendment to except the profession from the operation of the present laws regarding contraception, there appears to be still some doubt in Washington as to the desire of physicians in general to enjoy the exercise of liberty in prescribing for their patients. The National Committee on Federal Legislation for Birth Control is doing an important public service in presenting the case of our profession. Their proposals have already been endorsed by leading physicians such as Dr. Adolph Meyer and Dr. William Allen Pusey as well as by prominent physicians in this state. The representative of this movement in Colorado is Miss Ruth Vincent, 2730 Grove Street, Denver. She will be glad to supply full information

regarding the proposed amendment and to furnish endorsement cards for our signatures. Let us express our gratitude by creating a heavy demand.

THE VIRUS OF DISSEMINATED SCLEROSIS

The papers of Miss Kathleen Chevassut and of Sir James Purves Stewart in a recent number of the Lancet[1] give reason to hope that the specific cause of one of the commonest of the chronic diseases of the nervous system has been discovered. A filterable virus has been isolated from the spinal fluid of 176 out of 189 cases of the disease submitted to examination. A control series of 269 cases of other diseases has failed to yield from the spinal fluid a single culture of this organism. The confirmation of these results by other bacteriologists will place the causative nature of the virus on a sure foundation.

Whether or no the discovery will lead immediately to the prevention or cure of the disease is another matter. The employment by Sir James of autogenous vaccines prepared from cultures of the virus is a rational and hopeful procedure. The four cases that he reports in full have shown evidence of amelioration. But spontaneous remissions are by no means unknown in this disease and Sir James himself is wisely emphatic in pointing out the necessity of caution in interpreting his results.

The discoverer of the virus is the daughter of a clergyman in the Anglican Church. She took her M.Sc. degree from the University of London and after studying medicine in the same university took up research in the cerebro-spinal fluid. Her work on the new virus has been done in the pathological laboratories of Westminster Hospital.

[1]Chevassut, Kathleen, the etiology of disseminated sclerosis, Lancet, March 22, 1930, p. 552. Stewart, Sir J. P. A specific vaccine treatment in disseminated sclerosis, ibid, p. 560.

CORRESPONDENCE

April 24, 1930.

To the Editor of Colorado Medicine,
Metropolitan Building,
Denver, Colorado.

Dear Sir:

The list of those "licensed to practice medicine" in Colorado, lately issued in a directory by the Colorado State Board of Medical Examiners, is a most unattractive commentary upon the legal basis for medical licensure in the state of Colorado, and incidentally must be taken as reflecting seriously upon the attitude of the regular medical profession in this state toward legislative matters.

That men and women who have studied medicine along strictly classical lines, and who try to practice medicine as a department of applied science, should find themselves mixed up with "D. O.'s" in an official list of this kind is contrary to scientific reason and to professional good taste. How can a group of individuals whose so-called school is built upon a false dogma born of ignorance and quackery be considered as entitled to classification among those who practice medicine? That many of these irregulars are becoming more and more respectable, that they have added regular medical methods to their fundamental heterodoxy, that many of them are amiable and well-meaning gentlemen whose practice is on the whole relatively harmless, or even that some of them have learned to do really beneficial work along regular medical lines, does not alter the fact that their title and their fundamental claims are based upon distortion and misrepresentation of anatomy and physiology.

The title of the list above referred to may be in harmony with the wording of the medical practice acts, but it is certainly not in harmony with the point of view of those doctors of medicine who have been favored with copies of this new directory.

Sincerely yours,

WILLIAM H. CRISP.

SYMPOSIUM ON SYPHILIS*

GENERAL CLINICAL ASPECTS OF SYPHILIS

A. J. MARKLEY, M.D.
DENVER

Syphilis is best understood when viewed as an infectious exanthematous and enanthematous disease with an obvious tendency to pursue a definite course terminating in complete recovery with the development of natural immunity, which, however, is often insufficient to effect a complete cure leaving a persistently chronic phase which constitutes one of the most serious and destructive of disease processes.

The course of untreated syphilis falls naturally into several stages or phases which are without definite time limitations but are distinguished by differences in the character of the lesions and symptoms occurring in each, but since these phases, primary, secondary and tertiary, usually merge imperceptibly one into another it is more accurate to speak of early and late syphilis.

It cannot be too frequently repeated that syphilis is not necessarily of venereal origin. Infection, although usually genital, may occur on any part of the body to which the specific organism gains access; such extragenital infections are not infrequent and often escape recognition because their location does not excite suspicion.

At the site of infection there appears in an average period of three weeks, at times more or less, a local tissue reaction known as the initial or primary lesion, the clinical features of which are extremely variable, although often so characteristic as to be of themselves diagnostic.

Shortly after the appearance of the initial lesion, the anatomically related lymph glands become painlessly and discretely enlarged, constituting with the initial lesion the characteristic symptomatology of the primary stage of the disease and lasting an average period of six weeks. During this period the specific organisms multiply, enter the lymphatics and blood vessels and are disseminated throughout the whole body, the infection, therefore, becoming generalized in its earliest stages.

Symptoms indicative of a constitutional disease now begin to appear and develop more or less rapidly. There may be no subjective symptoms, but more commonly there are headache, neuralgia, arthralgia and ostalgia worse at night, rarely slight fever.

More important, however, are the cutaneous, mucous and glandular manifestations. There is a generalized, symmetrical eruption assuming a great variety of forms; the mucous membranes present superficial grayish ulcerations, which at the cutaneous junctures often become fungous.

The lymph glands of the whole body are involved in a hard, indolent and painless enlargement, both palpable and visible where they are superficial.

There may be enlargement of the liver and spleen and acute syphilitic nephritis is not rare.

There is often meningeal irritation, the optic nerve may be involved even in early syphilis, and iritis and disturbances of hearing are common.

This phase of syphilis known as the secondary stage pursues a course of two to three years marked by remissions and recrudescences of the symptoms and variations in their form and intensity.

All these phenomena represent a frequently shifting relation between infection and body resistance, when as occasionally happens, resistance fails entirely, malignant syphilis with early tertianism, and death supervenes, usually, however, resistance gains a temporary ascendancy, immunity is apparently established, the activity of the disease wanes, and the symptoms disappear with little or no permanent damage to the tissues involved. There now ensues a period of latency lasting perhaps years. Rarely it

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is permanent; ultimately, however, activity ordinarily reappears, but its form is changed, the lesions are not symmetrically generalized, often limited to a single organ or tissue and few in number. Some lesions may heal entirely or partly, but the process as a whole continues indefinitely. The disease has now reached that phase of late syphilis known as the tertiary period, apparently more benign but actually more dangerous since it is in this stage that the most destructive and disabling effects of syphilis appear.

The characteristic feature of late syphilis is a lesion known as a gumma, a hyperplastic tissue-reaction excited by spirochaetes that have escaped destruction by the more active processes of immunity early in the disease. These lesions may develop in any organ or tissue of the body but they display a definite predilection for certain organs or tissues in the individual case. They vary greatly in size and form with a tendency to central necrosis and subsequent cicatricial contraction while extending at their periphery.

The effects of the gumma are largely mechanical, that is, pressure and obstruction from the growth itself and from the contracting scar, the end results of which constitute the symptomatology of late syphilis, a subject too complex for discussion here, including as it should a consideration of every organ and tissue of the body. Briefly, however, these symptoms consist objectively of tumor formation and subsequent ulceration; of disturbances of nutrition and function which in highly specialized structures such as the central nervous system, the eyes and the cardio-vascular system cause serious and irremediable damage, and in other soft tissues and in bones, extensive destruction and disfigurement.

The Wassermann reaction is properly considered among the clinical manifestations of syphilis. It does not become positive until the latter portion of the primary stage, it is positive in practically all cases during the secondary stage, is negative in about 30 per cent of typical tertiary cases, and in malignant syphilis always negative.

It should be accepted only for its value as a sign which may or may not be present.

The description just given is that of typical untreated syphilis and many cases will, of course, fail to conform to this type; the infection may be of low virulence or body resistance very high, many of the symptoms enumerated are, therefore, often absent or slightly in evidence, the course of the disease is mild particularly in the secondary phase.

Treatment of any kind definitely modifies the course of syphilis, but the discovery of its cause, the development of serological and dark field methods of diagnosis and the introduction of the arsphenamines into its treatment have profoundly changed the whole clinical aspect of this disease by almost entirely eliminating its secondary phase. So nearly has this been accomplished that the once common florid secondary syphilis is now rarely seen and it is difficult to secure material of this nature sufficient for teaching purposes.

Complete cure is, however, rarely achieved because of the failure of patients to follow treatment sufficiently long, and tertiary syphilis we shall see for yet many years.

Eradication of the disease may, nevertheless, be accomplished by preventing development of the infectious lesions which are practically confined to the secondary period.

LABORATORY DIAGNOSIS

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The protean manifestations of syphilis and their resemblances to many other diseases make the laboratory diagnosis all but indispensable. It has, therefore, become a universal routine practice to confirm the clinical findings of lues by the proper laboratory procedure. This will vary in accordance with the stage of the disease.

The diagnosis of a suspicious primary sore can be made only by a demonstration of the treponema pallidum. In the first few weeks after the appearance of the chancre the Wassermann reaction is negative. It may appear superfluous to utter this word of caution, but the Wassermann is so intimately bound up with the diagnosis of lues in the minds both of the laity and of the profession, that its limitations at the various periods of the disease cannot be overemphasized. That patients will come to their doctor for a Wassermann test within twenty-four hours of exposure is not to be wondered at. Yet occasionally, though rarely, a practitioner still harbors the delusion that the serologic test will be positive simultaneously with the appearance of the chancre.

Every sore on the genitals, regardless of its innocent look or the protestation or character of the patient, should be subjected to a dark-field examination. While some sores have the typical induration of the classical hunterian chancre, there are many others that have no such clinical criteria and yet show spirochetes under the microscope.

The experience of specialists in venereal diseases bears out the advice not to trust to external appearances of the sore nor the history given by the patient. Our own observations of many primary lesions referred for laboratory diagnosis in which we endeavored to predict the result only confirmed the fallacy of trusting to macroscopic findings.

Other locations than the genitals are likewise to be subjected to microscopic examination, especially, the lip usually the upper one, the mammary gland and other unusual sites.

The exact diagnosis is made by demonstrating the treponema pallidum in the serum from the sore. This is rendered easy by the method of dark field illumination. Occasionally the organism is hard to find, especially after the use of caustics on the sore, in which case search is made after twenty-four or forty-eight hours. It is our practice never to take a negative as conclusive unless two and even three successive examinations are made at twenty-four hour intervals.

The sooner a positive diagnosis is made after the appearance of the chancre the more quickly can specific treatment be instituted. Hence, the importance of an early and conclusive diagnosis. Without a laboratory confirmation doubts may subsequently arise in the mind of the patient or of another physician as to the correctness of the diagnosis. On the other hand, it would not be fair to the patient to start specific treatment before the treponema is definitely demonstrated and thus leave a cloud on the patient's mind for the rest of his life.

The Wassermann reaction begins to turn positive within a week or two before or coincident with the appearance of the secondary symptoms. As these may fail to appear in a small proportion of the cases it is good practice to have the Wassermann test made on those patients where the treponema was not demonstrated in the primary sore so as to obviate the slightest chance of error. At the height of the eruption the Wassermann is positive in practically 100 per cent of the cases. With the institution of treatment the reaction becomes weaker in intensity and subsequently becomes negative. Serologic tests should therefore be carried out from time to time as an index for treatment or of its efficacy. Even after cessation of treatment, i. e., after the usual two years' observation a test should be made at yearly or longer intervals for fear of a recurrence.

The Wassermann reaction of the serum has become almost a routine test in cases of doubtful etiology and in order to rule out lues in the differential diagnosis. Various skin eruptions, lesions on the lip, ulcer of leg, carcinoma or sarcoma in various sites, Hodgkin's disease, tuberculosis of lymph nodes and divers other conditions call for the complement fixation test for lues.

The suspected presence of gumma in any of the organs may be confirmed by the Wassermann in a certain percentage of cases, although caution must be observed in the process of reasoning to a logical conclusion

lest lues and another condition, such as carcinoma, occur in the same patient.

In the domain of neurology there are numerous symptom complexes that demand a Wassermann test either of the serum or of the cerebrospinal fluid or both. The differentiation of the various types of neurosyphilis has been greatly aided by an examination of the cerebrospinal fluid comprising in addition to the Wassermann test an enumeration of the cells, the globulin test and the Lange or colloidal gold test. With the aid of the latter characteristic curves show the presence of paresis or of tabes as the case may be. Here the laboratory findings must be carefully correlated with the results from the clinical examination.

While the Wassermann test is at times the final and characteristic proof, it must not be forgotten that a negative reaction does not imply the absence of lues. As with other laboratory data the good common sense of the practitioner is always a desirable requisite in arriving at a final conclusion. Nor is the particular technique that is carried out of as much importance as the responsibility of the one who signs the laboratory report.

THE TREATMENT OF EARLY SYPHILIS

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The study of syphilis is fascinating due to the variety and distribution of the symptoms and lesions, the wide range in remedies and the methods of their application in its treatment. "It is a disease as protean in aspect as it is diversified in attack."

The treatment of early syphilis must be early and intensive, as soon as possible to combat the infection for the benefit of the patient himself and to control the infectiousness in the interest of the public health.

Before the discovery of the spirocheta pallida in 1905 and the Wassermann reaction one year later no reasonably accurate positive diagnosis of early syphilis could be made until the appearance of the secondaries. In spite of these epoch making discoveries too many patients yet are not given the benefit of an early diagnosis. I cannot too strongly condemn the frequent practice of starting treatment without a positive diagnosis. Because of lack of study and consequent indecision in the mind of the physician and the resulting failure to impress the patient with the seriousness of his disease, this treatment is often short-lived. The result is that the patient goes through life in doubt and constant fear or becomes a syphilitic derelict.

If the treatment of early syphilis were ideal,—if it were possible to destroy every pale spirochete without damage to the body tissues,—if it always were possible to begin treatment while the patient is in a positive spirochete-seronegative stage, then syphilis could be classed as a curable disease. And if all luetics were detected either in private practice or in the clinic, then might one hope for social control and final suppression. To the contrary, I am satisfied that only a small percentage of syphilitic patients are seen in this early stage and more than sure that patients in all public clinics are not sufficiently and well treated. This is partly the result of an insufficient force or staff to give interested personal attention both to the actual treatment of the disease and to the education of the patient himself. It is due also, I believe, largely to the fact that these patients are most recalcitrant and as soon as the manifest symptoms have been controlled or dissipated they stop treatment and go on until later they appear in a neurological department or a psycopathic hospital, crippled by some late degeneration.

A great responsibility thus is placed upon such a clinic. Teaching institutions, because of the usually better qualified personnel are, I believe, much better able to assume this responsibility than other organizations for public free treatment.

What then constitutes the proper management of a case of early syphilis? What are the drugs and chemicals required to bring

about the possibility of cure and what are the methods of their use? I shall attempt briefly to answer these questions. A diagnosis from the dark-field if possible,—lacking this, a reliable Wassermann,—the instruction of the patient in general hygiene, cleanliness, good living and the protection of others. The arsphenamines and their derivatives for spirillicidal action, mercury for its known value as a stimulator of cellular resistance and bismuth which possesses some of the qualities of both the arsphenamines and mercury. Undoubtedly the old or arsphenamine proper is more effective than the new, but the low toxicity and convenience of administration constitute the prime reasons for the enormous popularity of neo-arsphenamine.

Mercury, used for thousands of years in the treatment of syphilis has controlled the outbreaks and scourges of lues for these centuries. It would seem that it does possess some spirillicidal action, recent investigations and the opinion of authority to the contrary. Mercury is used in the treatment of syphilis in many ways,—by mouth ingestion, by inunction and by the needle both intravenously and in the muscle. In general the soluble salts are much more rapid in action but less enduring than the insoluble. In spite of today's tendency for direct administration the old inunction has survived and is the safest effective method for administering the drug.

Since 1922 we have used bismuth. Its place in the treatment of syphilis today is not challenged but it is still under investigation and regarding it, according to Stokes, "there is yet not a sound evaluation." Being somewhat spirillicidal and also a builder of antibodies it occupies a place between the arsphenamines and mercury. The same factors of absorption, retention, elimination and toxicity obtain as are present in the use of mercury. Bismuth, however, does present a new angle of attack in obstinate cases and especially in mercury, arsenic and Wassermann-fast cases. Its action is prolonged.

The iodides, long used in the later stages of syphilis are not spirillicidal and are claimed not to stimulate a specific cellular resistance mechanism against the spirocheta pallida, but they are of undoubted value in hastening resolution of syphilitic granulomata. They are best presented after the first year but are indicated at any time if there is pain, ulceration or destruction of tissue. They possess powerful oxidizing, resolvent and eliminative action.

Treatment is best arranged in courses. Rest periods are not so frequent and not so long as formerly. Once the diagnosis is established a reasonable routine of treatment would consist of the following: a course of six or eight intravenous injections of neo-arsphenamine given at intervals of about five days. It is well to begin with a small dose, three decigrams, then in two days 0.45 and then on at the above stated intervals with the "sixes" and the "nines." It is to be remembered that the potency of the "neo" is only two-thirds that of the old arsphenamine. The patient should have at least three such courses during the first year. Over-lapping or at least beginning immediately following the last arsphenamine, mercury is presented. A course of sixteen to twenty-four inunctions of the 50 per cent ointment is prescribed or at this time one can use a soluble salt of mercury in the muscle. The succinimid in one-fifth grain doses is a favorite and is most rapid in action. Following this, bismuth, using either a soluble or an insoluble preparation may be exhibited. In short, the first year's treatment should in general consist of three courses of neo-arsphenamine, two courses of the soluble mercury, two courses of the insoluble and two courses of bismuth. This will consume about forty weeks, leaving twelve weeks or three months for inunctions, oral administration, rest periods and diet changes. While today, the administration of mercury is most popular by the needle, in the vein or the muscle, oral administration presents a splendid opportunity for the presentation of combinations with iron, so essential to the luetic. Cod liver oil, also, has its place in the treatment of many of these patients. Treatment during the second year

should be very similar to that as outlined for the first, but perhaps not so strenuous and with longer rest periods. Patients and cases must be individualized.

New remedies and methods have been presented to the profession during the past few years, but opinions and reports differ as to their usefulness and preference. "The physician has access to a variety of agents and methods tempting in assortment and combination."

While we owe much to the pharmaceutical chemist and the manufacturer for the many splendid preparations of these drugs and especially for the convenience of administration made possible by the ampule, collapsule and the like, we must guard against over-enthusiasm for this or that new combination or innovation.

Too, a mushroom growth of literature has sprung up—booklets and leaflets litter our desks; some of these certainly are of merit and deserve our attention, but we must set aside that which savors of pharmaceutic enterprise. The physician has to stick pretty close to the old and to the tried and true adopting certainly such new drugs, combinations and methods as have been demonstrated worthy by those who have available large clientele, clinics and laboratories for checking results.

The prognosis for the cure of syphilis is not good. It is a disease of latency and of relapse—latency due to entrenchment behind fibrosis and vascular occlusion and relapse due to weakening of resistance building forces. But the control of syphilis is made possible by early diagnosis and early intensive and well rationalized treatment. Individuals differ so markedly that the closest watch must be kept on tolerance. Observation, life-long observation is the only safe and sure procedure. Patients should return every year for examination in search for evidence of relapse. This search should be a most thorough and careful one embracing a critical examination of the skin and mucous membranes, the bones, the chest, "with special care to the aortic second," and the abdomen for palpable liver and spleen. Bladder retention, shooting and spot-like pains, the fixed pupil and ataxia should not be overlooked. Hemoglobin and blood pressure should be investigated and throughout from the first day to the last, the urine should be watched.

In short, early diagnosis from dark-field findings, prompt and energetic treatment, arsphenamine to dissipate symptoms and for immediate spirillicidal action, mercury and bismuth for cellular resistance and permanent results, and iron tonics, and general hygiene, make for the best in treatment. Finally, all follow up examinations should include the spinal fluid for pressure, Wassermann, cell count, globulin and colloidal gold.

REFERENCE

Stokes, J. H.: Modern Clinical Syphilology. W. B. Saunders Co., 1926.

CLINICAL TYPES OF NEUROSYPHILIS

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The incidence of neurosyphilis is generally conceded by syphilographers to be a fairly accurate gauge of the efficacy of the treatment of syphilis in general. Consequently an understanding of the types of involvement of the central nervous system is essential for the proper application of the numerous agencies which have recently been added to our therapeutic armamentarium.

It has been repeatedly demonstrated during recent years that in a large proportion of all patients who have contracted syphilis, the central nervous system is invaded by the treponema pallidum at the time of its general dissemination in the first months following infection. This invasion is usually indicated by changes in the cerebrospinal fluid. The percentage of patients thus showing early abnormal findings approximates the percentage of patients showing late neurosyphilis, a fact which makes it probable that when invasion of the central nervous system does occur it occurs shortly after the initial infection. This fact, to-

gether with the demonstration by Noguchi and Moore of spirochetes in the tissue and spinal fluid in cases of late neurosyphilis, has caused the older conception of parasyphilis and metasyphilis to lose much of its importance. It has necessitated a revision of the terminology of the types of involvement with the effort directed toward a better correlation of the clinical and the pathological pictures.

The modern conception deals with the pathologic changes on the basis of meningeal, vascular and parenchymatous processes. When we attempt to adapt this classification to clinical cases we frequently experience difficulty due in part at least to the fact that rarely is one system involved to the exclusion of the others. With this point in mind, we can follow the classification proposed first by Head and Fearnsides and later modified by Stokes and Shaffer. This divides all cases into three main groups:

Group I. Preponderantly meningeal neurosyphilis. This group includes most of the early cases of involvement of the nervous system. These may be further subdivided into: (a) acute syphilitic meningitis, occurring in untreated patients, manifesting the characteristic signs of meningitis with the accompanying signs of a recent early syphilis; (b) neurorecurrence, evidenced in inadequately treated patients by various clinical manifestations, usually consisting of a subacute meningitis with or without focal cranial nerve lesions and occurring in 2 to 5 per cent of syphilities; (c) mild meningeal neurosyphilis, manifested by mild symptoms or slight physical signs, headache, neuralgia pains, insomnia, vertigo, or nervousness; (d) asymptomatic neurosyphilis, patients having no complaint and showing no physical abnormalties. They show only abnormalities of the cerebrospinal fluid, a finding in about 20 per cent of all early syphilities.

Group II. Preponderantly vascular neurosyphilis or late meningovascular neurosyphilitis. This group contains the most diverse types and presents the most difficulties in the correlation of clinical and pathological findings. It includes: (a) diffuse cerebrospinal syphilis. Evidence of endarteritic focal lesions with occasional cranial nerve disorders arising either through nuclear involvement in a vascular process or through an accompanying meningitic process. Hemiplegias and various transient paralytic phenomena are frequently encountered; (b) syphilitic epilepsy. Seizures are usually epileptiform and resemble cortical epilepsy but occasionally resemble the ordinary epileptic seizures. Apoplectiform attacks, closely resembling an ordinary stroke with the usual post apoplectic phenomena occur rarely (Southard and Solomon); (c) brain gumma. This may be single, presenting local signs of a tumor; multiple, presenting the symptomatology of a diffuse neurosyphilis or it may be a diffuse gummatous infiltration, likewise presenting the symptomatology of a diffuse neurosyphilis; (d) syphilitic transverse myelitis with its paraplegia and syphilitic chronic anterior poliomyelitis which are predominantly vascular in origin.

Group III. Preponderantly parenchymatous neurosyphilis: (a) paresis—neurosyphilis plus a psychosis. For practical purposes Ebaugh classifies paretic into three groups, namely: Group A, the organic or deteriorated group with evidence of gross mental deterioration, emotional liability, impaired judgment, clouded sensorium and grave personality changes. Group B, an organic reaction with a psychosis of a functional coloring. Clinically this group includes psychoses similar to the functional disturbances seen in manic excitement with depression and other reaction types in addition to the organic symptoms present in general paresis. Group C, cases without the signs of deterioration of general paresis in which mental symptoms are frequently transitory and exhibited before any sign of deterioration. These are cases of predominantly vascular involvement, in which parenchymatous changes of sufficient degree to influence the clinical picture have occurred; (b) tabes—fundamentally, involvement of the dorsal roots and dorsal root ganglia of the spinal nerves with ascending degeneration of the

posterior columns of the cord, with clinical symptomatology derived from these facts although presenting at times a clinical variability which makes it difficult to realize the unity of the process; (c) tabo-paresis, combined brain and cord involvement of a parenchymatous type; (d) late asymptomatic neurosyphilis or paresis. These are cases exhibiting minor neurologic signs and symptoms which may and frequently do occur in normal as well as in syphilitic persons—headache, insomnia, pupillary and reflex disturbances—but whose occurrence in a patient with a history of syphilis is presumptive evidence of the existence of neurosyphilis. Examination of the spinal fluid will usually give confirmatory evidence if the serology has not been modified by recent treatment; (e) primary optic atrophy is usually a part of the parenchymatous involvement associated with tabes but it may be associated with a basilar meningitis.

Neurosyphilis presents the same forms in heredosyphilis that it does in the adult with the variations to be expected due to the occurrence of the disease in an undeveloped organ. The most frequent involvement is of the parenchymatous type, the disease appearing as juvenile paresis, juvenile tabes and mental deficiency.

No mention has been made in this classification of the serological findings in the various types of neurosyphilis. Adequate examination requires observations on pressure, color and physical properties when drawn, with a study of the cytology, globulin, total protein, quantitative Wassermann reaction and colloidal gold test on the freshly drawn fluid. These findings are of the utmost importance providing there is a close co-operation between the clinician and the laboratory so that all factors are weighed in their relative importance. With this co-operation existing it may safely be stated that the routine examination of the spinal fluid of patients suffering from all forms of syphilis with alteration of treatment as indicated is the most important factor in the prognosis of neurosyphilis.

It is of utmost importance that the patients suffering from neuro-syphilis be properly classified since experience has shown that treatment must be varied to meet the type of involvement. Whether routine salvarsan therapy or intensified salvarsan therapy will suffice or whether we must resort to intraspinal treatment, tryparsamide or non-specific forms of therapy depends upon our diagnosis and the patient's response to treatment.

Summary

1. A classification of the types of neurosyphilis is presented.

2. The necessity of early and repeated spinal fluid examinations is indicated.

3. The occurrence of asymptomatic neurosyphilis is emphasized.

4. The necessity of altering treatment to accord with type of involvement is indicated.

Bibliography

[1]Head, H., and Fearnside, E. G. Clinical Aspects of Syphilis of the Nervous System in the Light of the Wassermann Reaction and Treatment with Neosalvarsan, Brain 39: 1, 1914.

[2]Stokes, J. H., and Shaffer, L. W. Results Secured by Standard Methods of Treatment in Neurosyphilis. J. A. M. A. 83: 1826, 1924.

[3]Moore, J. E. Studies in Asymptomatic Neurosyphilis: The Classification, Treatment and Prognosis of Early Asymptomatic Neurosyphilis. Bulletin Johns Hopkins' Hospital, 33: 231, 1922.

[4]Moore, J. E. A Comparison of Early and Late Asymptomatic Neurosyphilis. Arch. Derm. & Syph. 18: 99, 1928.

[5]Moore, J. E. The Treatment of Central Nervous System Syphilis. J. A. M. A. 89: 588, 1927.

[6]Stokes, J. H. Modern Clinical Syphilology. W. B. Saunders Co., 1926.

PATHOLOGY OF CARDIO-VASCULAR SYPHILIS

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It has been variously estimated that one-half of the deaths from syphilis are the result of cardio-vascular syphilis, and more particularly, the end result of syphilitic aortitis with its accompanying aortic insufficiency, aneurysm, or coronary occlusion. These observations place vascular syphilis as the most important manifestation of its late stages.

The proximal arch is always involved

and the changes extend into the thoracic portion, and occasionally into the abdominal portion. The abdominal portion, however, is not affected frequently, this locality being much more prone to arteriosclerotic degeneration. It is a common observation that the luetic process attacking the wall of the aorta, rarely if ever extends into the walls of its branches, not even the larger ones, but does, not infrequently, encroach upon the lumen of the branch at its origin, seriously affecting the amount of blood delivered through this branch, and when it happens that the orifices of the coronary vessels are thus narrowed and obstructed, the consequences are more serious.

In this particular area the pathological process is so typical that the lesions of late syphilis can be uniformly demonstrated, making the diagnosis from a pathological standpoint comparatively simple. The inner coat of the aorta, the intima, is covered with endothelium lying upon a loose investment which separates the endothelium from the media, or middle coat, which is comparatively thick, and of great strength and elasticity, being made up of muscle and elastic tissue. To the outside is the adventitia, a rather loose investment of fibrous tissue in which large numbers of blood-vessels are found. Neither the intima nor the adventitia are possessed of any great strength, the media furnishing the bulk of the wall. And it is in the media where the changes so characteristic of vascular lues are found, and it is here also that the greatest structural deformities are seen.

Briefly one may define specific aortitis as a process which progressively destroys the media and is associated with a compensatory thickening of the intima and adventitia. Here, as in other parts of the body, the term compensatory as descriptive of much fibrous tissue production should be considered advisedly. In reality it is a pure cause and effect proposition. The effects, described later, may be aortic insufficiency, dilatation of the arch, aneurysm, or obstruction of the coronary orifices. Also, if Nature should prove to be benevolent, it is purposeless and accidental, since to hold that the thickening of the intima and adventitia really compensates for the destruction of the media, is to ignore the end results of this malady.

The histological changes are a combination of gummatous or granulation-like tissue made up of semi-caseous areas with peripheral fibrosis, or areas entirely fibrous, round cell and perivascular round cell accumulations, plasma cells, and occasionally giant cells. Probably the most distinct change is the regularity with which perivascular round-cell accumulations occur. The well-defined and larger vessels in the adventitia are closely invested with heavy mantles of deeply staining round cells. The vessel walls are frequently thickened encroaching upon their lumens. The adventitia itself has become more dense and possibly thickened by fibrous tissue additions. This round-cell accumulation tends to follow the branches of these vessels into the media, and because of its different structure, the effect is disastrous. The cellular exudate breaks the muscular and elastic fibers of the media, and the resulting reparative fibrosis increases the distortion. While at times these lesions are scattered they frequently are numerous, so much so that the media may become almost entirely lost for considerable areas. Here, for a time at least, the adventitia and intima thicken considerably and at some later date become thinned out so that this area of the wall looks and feels like parchment. Where large areas are involved the adventitia may become an almost continuous coating of fibrous tissue, while the intima shows the most marked distortion. The normally slightly yellowish smooth intima becomes dotted with elevated bluish plaques, these being areas of new connective tissue, while the older areas are shrunken and depressed. Very frequently the intima is thrown up into longitudinal folds or wrinkles, due partially to the contraction of the new connective tissue, and also to the fact that the destructive process in the media tends to lessen the circumference of the wall at that point, thus drawing

the intima into folds. The calcification and ulceration so common to arteriosclerotic degeneration is infrequent in this process, and when present is probably due to a combination of lesions.

With aneurysms you are familiar. They vary in size, shape and location. Their formation is dependent upon a localization of the morbid process just described. The aortic wall, weakened by the destruction of the media, bulges. In the large saccular type of aneurysm, which is the most frequent type, the wall a little distance from the point of origin, is nothing but fibrous tissue. All trace of the coats of the aorta has become lost. Sometimes it lacks even the fibrous retaining membrane, and the continuity of the vessel is maintained by a large partially organized thrombus. These tumors erode and destroy, produce pressure and not infrequently rupture into the trachea, or into the pleural or pericardial cavities.

Aortic insufficiency may be produced in two ways, although it is almost always a combination at some time or another, of distorted valves and dilatation of the aortic ring. That the aortic valves should be involved frequently is obvious. The proximal portion of the arch is practically always attacked. It is a simple matter for the process to extend onto and into the valve leaflets. The reaction here is largely fibrous with thickening, curling and shortening of the cusps. The results are progressive and the vascular apparatus runs the gamut as it would from an endocarditis of an entirely different etiology.

In fact this condition of vascular syphilis offers the greatest combination of pathological entities. Dilatation of the arch, aneurysm, aortic insufficiency, varying degrees of obstruction to the branches of the arch, including the coronaries, may occur alone or in conjunction with each other, and they may also singly or in numbers combine with some degree of myocardial change dependent upon luetic invasion of the heart itself. The myocardium in late syphilis shows rather constantly perivascular foci, identical to the perivascular foci seen elsewhere in lues, accompanied by a varying degree of reparative fibrosis and its secondary effects. The extent to which the heart is embarrassed by these lesions seems to depend somewhat upon their quantity and location, and in some instances, to location alone, as in the condition of gumma of the bundle of conduction of His.

In conclusion there is a point which is of more than passing interest to the clinician. This has to do with the treatment of cardiovascular syphilis in its late stages. For many years it has been observed that gummatous lesions may melt away rapidly under intensive treatment, and particularly iodides. A few years ago Jobling and Peterson offered this explanation, which as far as I know has been accepted, that the reason why gummatous tissue disappears under iodides is that gummatous foci contain a large quantity of fatty acids, further that the normal tryptic ferments of the tissues are held in check by these acids, the administration of potassium iodide saturates the unsaturated fatty acids with iodine, the inhibiting influence is removed from the tryptic ferments thereby, and the digestion of the gummatous tissue follows.

Observation in a general hospital indicates that patients with advanced cardiovascular syphilis, and particularly aortitis and its accompanying phenomena, frequently go down hill rapidly when treated intensively with mixed treatment. It may be laid to the iodides. Although it may be impossible to demonstrate anything which could be considered due to rapid destruction of gummatous tissue or foci, the inference seems logical. There are probably a great many cases of advanced cardio-vascular syphilis that are being treated intensively, who would be better off without any treatment. It is characteristic of specific lesions to effect the production of large amounts of scar tissue. When by accident the scar tissue is favorably placed, life is prolonged. The scar tissue is frequently mixed with gummatous areas. It does not appear logical to chance weakening something which is apparently holding its own as favorably as possible under existing circumstances.

SYPHILIS OF THE EYE

WM. M. BANE, M.D.
DENVER

Interstitial keratitis is one of the most commonly seen ocular manifestations of syphilis, which is the principal etiological factor, only about 10 per cent being of tubercular origin. It occurs in hereditary syphilis, and although it is claimed to have been observed in acquired lues, it has not been proved that hereditary disease was not pre-existent. It is most frequently observed in girls between five and sixteen years old, but has occurred in infants, and as late in life as the fourth decade. The loss of transparency of the cornea is due to round celled infiltration into the middle and deep layers. Characteristic of this disease is the invasion of the substantia propria by new formed blood vessels which spring from the anterior ciliary arteries, and are arranged in broom like shape. Too many cases of interstitial keratitis have in the past been neglected, due to the belief by some that the disease is not materially affected by treatment, and that healing or clearing of the cornea will eventually occur in any case. But this is not so. The prognosis is very much worse in those poorly nourished children who are neglected or given inadequate treatment. The statistics of Carvill and Derby clearly prove this. In addition to the usual measures, dionin is frequently employed locally to reduce the discomfort and encourage absorption, and the use of intravenous or intramuscular arsenicals or bismuth aids greatly to arrest the progress of the inflammatory process in the majority of cases.

The eyelids are rarely the site of syphilitic lesions, but this disease does occasionally attack the lids either in the form of a chancre on the skin or conjunctival surface, which might for a time be mistaken for a chalazion, or in the tertiary stage as a tarsitis in the form of a gummatous thickening.

Orbital periostitis also may be leutic, especially when seen in adults. There is a reddening of the skin overlying the orbital deformity and a hard, tender swelling which may be palpated.

Among the commoner manifestations of ocular syphilis are the paralyses of the ocular muscles. In several series of cases of extrinsic muscle palsies, it was found that between 50 per cent and 60 per cent could be traced to syphilis. Of these, 65 per cent affected the oculo-motor nerve, 33 per cent affected the abducens, and 1 per cent affected the trochlear, not alone, but along with the oculo-motor.

The episcleral tissue and the sclera are only occasionally the seat of syphilitic disease. When we have luetic scleritis, it is in the form of gumma which is observed as a yellowish swelling near the cornea, followed usually by intra-ocular complications.

Retinitis and choroiditis or a combination of the two, chorio-retinitis, has most frequently a tuberculous or syphilitic background, and a differentiation with the ophthalmoscope as to the etiology is usually not possible without a definite history, or laboratory assistance. The choroidal lesions of syphilitic origin, however, are usually more sharply circumscribed, smaller, and rounded in outline. Floating opacities in the vitreous of various sizes and shapes are the rule with any case of choroiditis, but the "dust-like" opacities are rather more characteristic of the luetic type. This disease starts during the secondary stage but continues into the tertiary.

Iritis is claimed by some authorities to be caused by syphilis in 50 per cent of the cases, and is the most common of syphilitic eye lesions occurring during the secondary stage of the disease. Three per cent of the cases of hereditary syphilis develop an iritis. A plastic exudate is thrown out into the anterior chamber, and very resistant posterior synechias are quickly developed. In the nodular form, which is rare, discrete nodules which may be mistaken for gummata, develop either in the zone of the sphincter or at the pupillary border, accompanied by the formation of plastic synechias. Prompt and adequate antisyphilitic treat-

ment of the disease, both local and constitutional causes a rapid improvement, and the nodules soon disappear.

Optic neuritis, neuro-retinitis, and choked discs are occasionally observed during the tertiary stage of cerebral syphilis or syphilitic meningitis, but the ophthalmoscopic appearance alone is not diagnostic of syphilis. Such cases are usually bilateral.

Primary optic atrophy can be caused by a number of diseases, but syphilis plays a very important role, the atrophy of locomotor ataxia being the classical example. It is usually bilateral, accompanied by reduction in vision, and is not preceded by any demonstrable disease of the nerve itself. There is an atrophy and loss of the nerve fibres due to inflammatory exudates into the intracranial portion of the optic disc and chiasm with gray degeneration and a proliferation of glial tissue producing changes similar to those in the posterior columns.

These cases were formerly considered as hopeless, but at present the outlook is not quite so gloomy under modern treatment. Cady claims that before the use of tryparsamide, 48 per cent of cases were arrested and 12 per cent slightly improved. Now, 65 per cent of optic atrophies remain arrested or are improved. Hopkins quotes Fordyce as reporting twelve out of twenty-three cases showing marked improvement clinically. He states that opposition to specific treatment in case of optic atrophy is based partly on doubt as to possibility of cure, and partly on fear of adding to the damage already caused by the disease. Atrophy accompanying basilar meningitis has a better prognosis than the atrophy seen in tabes. Of the pentavalent arsenic compounds tryparsamide is the least dangerous. Of the trivalent compounds arsphenamine has never been proved to be the cause of optic atrophy, according to Hopkins, unless there was a pre-existing optic neuritis or primary optic atrophy. Intraspinous treatment by the Swift-Ellis method may be used to advantage when intravenous treatment does not produce results.

Thus it is evident that practically all of the structures of the eye may either be invaded by the spirocete or affected indirectly by syphilitic infection. We must never lose sight of the possibility of the luetic background in looking for the cause of ocular disease. The importance of early, thorough and prolonged treatment must never be overlooked, and we should never give up a case as hopeless until every effort to produce an arrest of the disease has been made.

BIBLIOGRAPHY

[1]Jackson, Edward: Ocular Manifestations of syphilis. Colo. Med. Journal, 6:287, 1900.

[2]Rutherford, C. W.: The Eye. Appleton, 1928.

[3]Hopkins, J. G.: The Treatment of the Commoner Syphilitic Adhesions of the Eye. Archives of Ophthalmology, 56:543-551. (Nov.), 1927.

DISCUSSION

L. W. Bortree, Colorado Springs: This symposium has been thoroughly worth while, and has covered a lot of territory. I have but two questions to bring up.

In the first place, there has been established for many years that "He who knows syphilis, knows medicine." I think the benefit we derive from this symposium is this: Whenever we see a condition in a patient which does not appear to be from one specific cause, we should say to ourselves, "Is this something except syphilis?" If we can answer that question, we have done a lot toward helping the patient. The second question is the danger in these days of depending too much on the laboratory findings. We get a positive Wassermann report the patient has syphilis. We need a better, a more thorough and exact study of our patients in the first place to avoid making the mistake of overlooking syphilis which is already present, and, in the second place, of characterizing as syphilitic symptoms or signs which are present with a positive Wassermann report. There is one point I would like to stress, and that is one brought up by Dr. Dennis, about the danger of intensive therapy in case of cardiovascular syphilis. It should be treated with extreme care in regard to therapy. And I think I take the view that Dr. Dennis does, that it is better to err on the side of care than on the side of excessive therapy.

H. T. Low, Pueblo: It is obviously impossible to discuss at length this paper in the short time that remains to us, so I will hit a few of the high lights as I go along. To quote Dr. Osler,—"Know ye syphilis in all its manifestations and relations and all things clinical will be known to you." Syphilis is considered, I believe, as a generalized infection, because of the fact of the end results. As a matter of fact, the spirochetes have flooded the entire body, even before the appearance of the initial lesion. The matter of early diagnosis is of prime importance to those who are treating this disease, and the use of the dark field on any genital sore, or any other suspicious sore on the human body, is necessary. The technique is not difficult, but the previous use of caustics, as Dr. Davis says, will probably cause you not to find the spirochetes in the dark field. I have had better success, where it was impossible to find them in the dark field, by following this

examination up and getting a number of positive Wassermanns within a two-week period. But this is not safe. If you do not get a positive dark field, and you get a negative Wassermann the first time, it must be repeated over and over until you are positive along with the negative test and the clinical symptoms that syphilis does not exist. Make the diagnosis first before any treatment of any kind is instituted. The blood Wassermann test has caused a lot of confusion among the profession. It has taken our laboratory men to tell us how valuable it is. It has caused confusion among the profession, and it has caused more confusion among the laity. I know of no more discouraging thing than to be treating a patient for syphilis and have him insist on a Wassermann after an intensive course of treatment. It comes back negative, and then the patient wants to argue with you as to why they should go on with treatment. He wants to know what degree of positive Wassermann it was, and I think we should be careful in informing our patients what degree of positive Wassermann it was, because a negative Wassermann to the patient implies a cure and such is far from the case.

Robert Levy, Denver: The discussion on the subject of syphilis might have started this morning at 9 o'clock, and did not the president wield his heavy gavel on us, we might still be on the same topic.

We should be proud of this symposium. It goes to show how thoroughly a man can cover the subject in ten minutes. No symposium ever presented before this Society has been of such universal interest.

In addition to what Dr. Bortree and Dr. Low have said, and long before Dr. Osler made his famous statement, Dr. Keyes said that syphilis was perhaps the most picturesque of all diseases; he also said that syphilis was no respecter of tissue. It seems to me that covers a very large field.

I should like to ask some member of this symposium to answer two questions that have always been rather difficult for me to determine: First, to what extent should we use and of what value is the provocative treatment in the test; and second, what may be said of the infectivity of syphilis in the tertiary stage?

J. A. Philpott, Denver: I would like to ask one question from the floor. I would like to ask one of the authors whether they said there should not be some word of warning as to early intensive treatment of syphilis. My impression was that as soon as diagnosed, it should be intensely treated. I question whether that is always right.

A. J. Markley, Denver: There is no question whatever as to the theoretical possibility of the infectivity of tertiary lesions. Such lesions would not occur if living spirochetes were not present, but they are present in small number and deeply buried, infection from them is therefore a remote probability.

In answer to Dr. Philpott's question, there is no doubt that the early imposition upon a patient of active arsenical treatment in the early stages may precipitate damage. I think we should approach the treatment of syphilis in its early stages very cautiously. My own preference is one or two weeks of mercurial or bismuth treatment. When we see a case of florid syphilis that will not submit to proper control, our obligation to the public, rather than to the patient, requires that we sterilize that patient as soon as possible, and I believe we are justified in doing so.

Philip Hillkowitz, Denver: In regard to the question of provocative Wassermanns, I must declare my skepticism. In my experience, I have never had very good results. If one does not get a positive Wassermann in the first place, I believe that rarely will you get a positive otherwise.

J. B. Davis, Denver: I am in accord with Dr. Markley in that large doses of arsphenamine are to be avoided at the commencement of the treatment of syphilis. And in instituting treatment in late cases, tissue resistance should first be built up with mercury before arsphenamine is at all exhibited. A nerve involvement, such as he describes, would be usually a late manifestation of the disease. My paper has to do with the treatment of early syphilis. Here, I am satisfied, arsphenamine is indicated from the beginning.

With reference to Dr. Philpott's discussion and in spite of what he has said, I feel sure that he is not an advocate of the so-called "suspended treatment." This system consists in allowing a patient to go on for several months without treatment on the theory that he can build up a personal immunity against his disease without drug assistance. This is intolerable. These patients are infectious, and not only for their own benefit, but certainly for that of the general public, immediate treatment must be instituted. Nor can they be absolutely quarantined.

I stress this because I should not want you to leave this hall, with the idea that anyone here believes in such a course in the management of syphilis.

G. S. Johnson, Denver: Just a word further in regard to the treatment in relation to its importance relative to neurosyphilis. It has been definitely shown that cases of neurosyphilis in the tertiary stage are definitely increased by the practice of rest periods, and that by a continuous treatment during the early, primary and secondary stages, the occurrence of clinically late neurosyphilis is definitely diminished.

PUBLIC HEALTH NOTES

Editor J. W. Amesse, M.D.

Cost of Medical Care

What the working man's family spends for health care during the year is the subject of a study made during the first six months in 1929 among its industrial policy holders by the Metropolitan Life Insurance Company. A report of the study by Lee K. Frankel has just been issued.

The information was secured through monthly calendars distributed by the nurses of the company who visited the families each month and assisted them in keeping their records accurately.

Schedules were received from 3,281 families who reported a total expenditure for the six months' period for medical care of $230,970. The average for each family was at the rate of $140 a year. Six per cent of the

families stated that nothing had been spent for medical care during the period. Of the remaining 3,083 families 80 per cent spent less than $100 each. Thirty-eight families, or 1 per cent of the total number, spent $500 or more during the period. An additional 3 per cent spent between $300 and $500, and another 4 per cent of the families spent from $200 to $300.

Less than half of the total amount of money spent, 43 per cent, went for doctors' fees. A private physician had been called to 82 per cent of the families during the six months. Druggists received $29,607 — less than one-third of the physicians' share. Hospitals were paid $28,708. One-third of the families had secured dental services at a cost of $18,108. The average per family for care of the teeth was $18. One family in eleven had required eye examinations or eye glasses and spent for these services $4,815, or 2 per cent of the total. Operation fees were borne by 212 families at an average cost of $74 to each, or a total of $15,779.

It was interesting to note that the amount expended for medical care varied with the number of persons in the family. Those living alone spent over $75 during the period. In families composed of two people each spent $41, while in the three-person family the individual expense was $23. In families of nine or more less than $7 each was spent. It is evident that large families cannot afford to pay as much for medical care as smaller families.

A large share of the expenditure for health services in this group of families fell upon a small proportion. Sixty-four per cent of the total expenditure came from one-fifth of the total number of families.

The report states that the schedules gave every indication of having been done accurately and with care. The figures would seem to be representative of a fairly large group of people in the country. One element could not be taken into consideration, which was that relating to the value of medical care received from clinics or other agencies without cost or at a small charge. Working class families do avail themselves of this type of medical service. It is felt, however, that the total presented represents a fairly inclusive picture which will be of assistance to the National Committee on the Cost of Medical Care.

In closing Dr. Frankel states that "The data indicate clearly one fundamental fact—namely, that sickness is a hazard of life comparable to other hazards such as death and acceptance . . . The real problem will be to provide systematized medical service which shall be adequate in the broadest sense. This is, in the last analysis, a problem for the medical profession and one which must be given early consideration."

Dr. Barnard, director of the White House conference on Child Health and Protection, will speak before the Parent-Teachers' Association and also at the monthly meeting of the Denver Public Health Council on May 19.

LIBRARY NOTES

EDITOR J. J. WARING, M.D.

Dr. Charles Singer of Oxford will address a special meeting of the Medical Society of the City and County of Denver, May 29 on the subject of "Pasteur." The Trustees of the Medical Society extend a cordial invitation to all the members of the State Medical Society to attend the meeting, which should be extremely interesting.

Dr. Singer is president of the International Committee of the History of Science (Paris); member of the Council of the History of Science Society (Cambridge, Mass.); former president of the Third International Congress of the History of Medicine; Head of the Department of the History of Medicine, London University; president of the International Congress of the History of Science and Technology, London, 1931.

He is also the author of the following:

From Magic to Science.

Studies in the History and Method of Science.

The Cures of the Diseases in Forraine Attempts of the English Nation.

Short History of Medicine.

Early English Magic and Medicine.

Greek Science and Modern—a Comparison and a Contrast.

The library is fortunate in having a number of works that he has written and others that he has edited. Among these are the following:

Greek Biology and Greek Medicine.

The Discovery of the Circulation.

Essays on the History of Medicine presented to Karl Sudhoff on the occasion of his 70th birthday.

The Earliest Literature on Syphilis.

The Fasciculo di Medicina. Venice 1493. Reprint Lier and Company, Florence, 1925.

The Evolution of Anatomy.

The Legacy of Israel.

Religion and Science Considered in Their Historical Relationships.

A Short History of Medicine.

An Historical Introduction to Biology.

It is interesting to note that Mrs. Singer has to her credit many academic achievements and publications also in the History of Medicine and Science. She has been at work on several volumes of a "Catalogue of Alchemical Manuscripts," Greek, Latin and Vernacular which is now in process of publication. On this work she has been occupied ever since the beginning of the war with exeursions into kindred subjects among them "The History of the Plague" and "Folk Medicine." She is also author of "Ambroise Paré." She is an executive member of the International Committee of the History of Science; a member of the Council of the History Section of the Royal Society of Medicine and a former member of the Historical Association.

It is highly probable that arrangements will be made for Mrs. Singer to lecture on some suitable evening before the County Medical Society, in which event all members of the State Medical Society will be invited to attend.

Permanent Home Committee

The following resolution was passed May 21, 1929, by the Medical Society of the City and County of Denver:

> "That the president appoint a committee of ten members of the Society to be known as the Permanent Home Committee; the duties of which shall be to co-operate with the Board of Trustees in devising plans for securing a permanent home for the library; appointments on this committee to be as follows: Two for two years, two for three years, two for four years, two for five years, and two for six years; subsequent appointments being for five years."

The personnel of this committee, appointed Feb. 5, 1930, by President William H. Halley, includes: For six years, Drs. Robert Levy and Frank W. Kenney; for five years, Drs. J. N. Hall and Edward Jackson; for four years, Drs. J. J. Waring and Harry S. Finney; for three years, Drs. Charles N. Meader and H. R. McKeen; for two years, Drs. George A. Moleen and John M. Foster, Jr. The committee has elected Dr. Waring chairman and Dr. Foster secretary.

BOOK REVIEWS

Handbuch der Kindertuberkulose Unter Mitwirkung Von Fachgenossen Herausgegeben Von Prof. Dr. St. Engel und Prof. Dr. Cl. Pirquet. Erster Band, Mit 481, Zum Teil Farbigen Abbildungen. 1930 Georg Thieme Verlag Leipzig.

The first volume of the "Handbuch der Kinder Tuberkulose" prepared under the editorial direction of the lamented Pirquet and Engel, includes among its collaborators such distinguished authorities as Zarfl Kleinschmidt, Moro, Hamburger, Schmorl and Hajek.

Even a hasty examination makes it quite apparent that this work represents no mere compilation. Each contributor gives evidence of complete mastery of the particular topic assigned to him for consideration, and relies chiefly upon a rich store of personal experience for the data presented. Besides, the vast literature that has accumulated upon the subject has been generously drawn upon. Each section concludes with a very comprehensive bibliography, in which the more notable contributions of French, English and American authors figure prominently.

Tuberculosis in its every aspect, is covered with characteristic Teutonic thoroughness. The volume comprises 885 pages, and is enriched by the inclusion of 481 illustrations, all exceptionally well executed. The reproductions of roentgenograms representing various chest findings are particularly to be commended for their excellence. I have never seen any which reproduce so vividly and so faithfully the conditions illustrated.

Some notion as to the thoroughness with which each subject is treated may be had when it is found that eighty-one pages are devoted to the consideration of tuberculous meningitis and miliary tuberculosis.

A noteworthy feature which very definitely enhances the value of the book is the liberal interspersion of case reports illustrating the subject under discussion.

No hint is offered by the publishers as to the number of volumes contemplated to bring the work to completion, its scope, nor the date of its completion. One may hazard the opinion that one additional volume of smaller dimension, will suffice; and it might be anticipated that the prophylaxis and treatment which have not been as exhaustively treated as other phases of tuberculosis, will be given extended notice.

The book is destined to become by virtue of its excellence, its conservatism and the authoritative tone pervading it, the outstanding work in its class. The physician especially interested in tuberculosis will hail it with unrestrained pleasure; and the general practitioner will speedily come to regard it as a thoroughly dependable book of reference in the field of childhood tuberculosis.

Undoubtedly an English translation will soon be forthcoming to make the work available to those not sufficiently familiar with the German language.

EMANUEL FRIEDMAN.

Psychology: Normal and Abnormal. By J. W. Bridges, Ph.D., Professor of Psychology McGill University. London and New York: D. Appleton & Co. 1930, pp. 551. Price, $3.50.

The Psychology of Childhood. By Edgar James Swift, Ph.D., Professor of Psychology in Washington University. London and New York: D. Appleton & Co. 1930, pp. 431. Price, $3.00.

Professor Bridges has produced a new textbook of psychology deliberately and admirably designed for the use of medical students and medical practitioners. The difficulties inherent in this task, especially those of combining in a single text the varied systems and vocabularies of the various schools, have been skillfully met. A good bibliography increases the value of the book to serious students. One astonishing omission must be recorded: the only reference that we have been able to find to the work of Wolfgang Kohler is a reference in the bibliography to his Mentality of Apes. We feel confident that the Gestalt Psychology will find a place in the second edition.

There is much common sense, enlivened here and there with a good story, in the volume by Professor Swift. We are doubtful whether it will add greatly to the insight of parents for whom it is written. It is probable that those who purchase a copy will be already familiar with the patter of mental hygiene. J. ROSSLYN EARP.

International Health Year-Book, 1928 (Fourth Year). Reports on the Public Health Progress of Twenty-nine Countries; Health Organization, League of Nations, 1929. Pp. 1173. Agents for the U. S. A.: World Peace Foundation, 40 Mt. Vernon Street, Boston 9, Mass.

The Official Vital Statistics of the Kingdom of Scotland. Statistical Handbooks, Series No. 13. League of Nations, Geneva, 1929. Pp. 84. Price $0.60. Agents for the U. S. A.: World Peace Foundation, 40 Mt. Vernon Street, Boston 9, Mass.

The Health Year-Books of the League of Nations provide a record of the public health progress of the world which is available nowhere else in the English language and could not be obtained at all without extravagant labor. The difficulties of making such a compilation must be indeed enormous. Perfection has by no means been attained: yet every year-book shows a definite improvement upon its predecessor and the present volume is no exception to that rule. For the first time a large number of the statistical tables have been made out upon standard forms, making possible some sort of rough comparison between the conditions in different countries. Table 18, for example, gives the figures for puerperal deaths. A hasty comparison of this table in the reports from different countries show a death rate from puerperal septicemia of 0.9 per 10,000 live births and still-births in Denmark and a corresponding rate of 89.0 in France. Closer examination of the tables reveals that in each case a miscalculation of the figures has been made: the Danish rate being ten times too low and the French rate ten times too high. Such slips in the compilation of statistical tables are rather disquieting. These same rates for great Britain and the United States are respectively 15.6 and 23.4 respectively. Here we may not suspect any clerical error, but doubts will arise as to definitions and methods of recording. In order to help us test the validity of comparisons in such respects as these the League is publishing a series of statical handbooks, the latest of which describes the history and methods of vital statistics in Scotland. Even public health men who have no interests outside their own country (if any such there be) may find in these reports many useful hints for the conduct of their own administrations.

J. ROSSLYN EARP.

Clinical Medicine for Nurses. By Paul H. Ringer, M.D. 330 pages. No illustrations. The F. H. Davis Company, Philadelphia, 1929.

This book is composed of the subject matter Dr. Ringer has used in his lectures to the student nurses of Ashville Mission Hospital. The material is simply stated, up-to-date, on the whole very practical and contains all that can adequately be covered in lectures in the time now allotted. However, as a text it includes too much of material which should have already been mastered in previous courses. Food and Nutrition, Immunity, Circulation as a Whole, Blood-Pressure, The Urine, are all topics which should not have to take a great deal of stress in the course in Medical Diseases. It is an excellent little book to have on your reference shelf, but is not so suitable as a text.

B. O. HART and
MARTHA G. BEEBE.

Human Biology and Human Welfare, edited by Edmund V. Cowdry, New York: Paul B. Hoeber, Inc., 1930. P. 612.

Sometimes amid the hurry of routine work or in the weariness that comes from long suffering of fools with gladness we are conscious of a need of intellectual stimulation. At such times biology is a never failing tonic. The twenty-eight authors who have contributed to the work before us have put up this tonic in an attractive and easily assimilable form. The mixture (and it is a mixture) contains nothing that is new, but much that has appeared hitherto only in publications that are somewhat inaccessible to the average man. The authors are without exception well qualified to discuss the subjects allotted to them and only a few have fallen into the trap laid for all who popularize knowledge—to slip easily over the surface of their subject rather than to translate its essence into the forms of popular thought. We shall make no invidious comparisons: the reader will determine for himself which chapters he can afford to skip. The book is printed on a heavy, expensive paper and is unwieldy in the hands.

J. ROSSLYN EARP.

Secretarial Notes and Comment

Edited by Harvey T. Sethman, Executive Secretary

THE A. M. A. ANNUAL SESSION

BY this time doubtless every member of the Colorado State Medical Society has received a copy of the Official Call issued by the American Medical Association for its eighty-first annual session, to be held in Detroit, Mich., Monday, June 23, to Friday, June 27.

The Executive Office of the State Society will be glad to learn the names of those doctors planning to attend the A. M. A. meeting. If a sufficient number can plan to go to the meeting together, the Executive Office will arrange for a special car or cars on one of the Burlington fast trains. Special low railroad rates will be in effect.

Likewise, if those planning to drive will register their names in the Executive Office, plans may be made to make up a "caravan" of Colorado automobiles to the meeting.

Please let the Executive Office know of your A. M. A. meeting plans.

OUR OWN ANNUAL SESSION

COME to Pueblo, Sept. 9! If members of the Society keep this in mind, set aside the date, and come, there will be no need to remind them that Sept. 10 and 11 are the remaining dates for the State Society's Sixtieth Annual Session. The Committees on Scientific Work, Local Arrangements, Entertainment, Golf Tournament, and Woman's Auxiliary promise that any doctor in Pueblo on Sept. 9 will stay the other two days in spite of himself.

If you have something for the Scientific Exhibit—do not delay, but let the Executive Office know about your exhibit material at once. The same may be said of the X-ray Exhibit.

If you know of a likely prospect for the Commercial Exhibit, give the Executive Office the prospect's name. Fifteen Commercial Exhibit booths will be available in the San Isabel room of the Congress Hotel. An attractive prospectus has been mailed to every logical exhibitor that the Executive Secretary can remember. But he may have missed one. Send in your suggestions.

ADVERTISING PROGRESS

IN February we called attention to a sizeable increase in local advertising and pointed out that the budget promise of a $750 increase in net advertising receipts for 1930 would be exceeded. Even then it appeared that the estimate of three years for taking Colorado Medicine "out of the red" was too conservative. More remunerative advertising was obtained, and the usual eighteen or twenty-page advertising section was getting crowded.

With this issue the advertising section increases to twenty-eight pages. More than a score of new advertisers make their bow to the profession. Colorado Medicine is closely approaching the fully self-supporting basis.

This means progress has been made. It means more. It means Colorado Medicine is rightly recognized as the advertising medium for reaching the medical profession of two states.

Both old and new advertisers are supporting the publication owned by the medical profession. They deserve and will expect reciprocal support. They will expect concrete results in increased patronage from the profession or they will seek other advertising mediums.

Every member of our Society is part owner of this journal. He does himself a financial favor when he supports Colorado Medicine advertisers, and the opposite is just as true.

We in the Society offices and you in your professional offices have a right to be proud of this advertising progress, and proud that it has been made without accepting a single questionable contract. You can depend on our advertisers. We are depending on you!

ENVELOPES

COLORADO Medicine goes to members and subscribers this month and hereafter in individual envelopes, and a new mailing system is put in use, designed to eliminate errors and speed service.

The change was made after careful investigation of past results in mailing systems, and comparison of costs of the old and many possible new systems.

It is hoped that Colorado Medicine will reach each reader in better condition than heretofore and that the number of members occasionally missing their copies will more closely approach the coveted zero mark. Your comments and criticism will be appreciated.

COMMITTEE ON SOCIAL MEDICINE

We wish to call the attention of members of the County Medical Societies to the health education campaigns being conducted in Colorado during April and May.

"Protecting Children from Tuberculosis" is the subject for the campaign in April, sponsored by the Tuberculosis Associations of the United States. This message is being carried through billboards, national magazine articles, leaflets, newspapers, and movie films. We recommend that a session of your Society be given to the discussion of "Tuberculosis in Childhood." The Colorado Tuberculosis Association will co-operate with this committee in securing speakers on this subject.

The Colorado Council of State-Wide Health Agencies is sponsoring May Day as Child Health Day. It is sending suggestions to parent-teacher associations, women's clubs, schools, public health nurses, recreational, and character-building groups to undertake activities for the protection of child health. The national slogan this year is "Parent Co-operation in Community Child Health and Protection." The community programs suggest that physicians be requested to speak before clubs, school classes, and to participate in other ways.

COMMITTEE ON SOCIAL MEDICINE,
B. B. JAFFA, Chairman.

MEDICAL SOCIETIES

Boulder County Medical Society

A symposium on diabetes formed the scientific program of the Boulder County Medical Society at its April meeting, held Thursday evening, April 10, in the Boulderado Hotel, Boulder. A 6:30 p. m. dinner preceded the regular meeting.

Dr. J. G. Ryan of Denver opened the program with "Treatment of Diabetes with Special Reference to Coma," and outlined practical systems of figuring diets for diabetic patients. Dr. C. E. Sidwell of Longmont followed with a paper on "The Eye and Ear Aspects of Diabetes." General discussion, in which many members took part, was opened by Dr. George H. Cattermole of Boulder.

Following the scientific program Mr. Harvey T. Sethman of Denver, executive secretary of the Colorado State Medical Society, addressed the Society on present and future activities of the state executive office and outlined briefly services to members that have been installed.

Several members of the Larimer County Medical Society were guests at the meeting, members of the Boulder County Society having been guests of the preceding Larimer county meeting.

* * *

Brucella infections—March meeting

Dr. H. L. Morency read a paper on abortion disease in cattle and undulant fever in the human. Abortion disease in dairy cattle is, he said, widespread and few towns and cities are without the infection in their milk supply. Because of the comparatively recent public health, medical and veterinary interest in this malady as it relates to the human, much attention is being given the disease. Research has shown, since the work of Bruce, Bang and later Evans, that most species of the domestic animals may play the part of host to the infection and that some strains of the organism possess a varying virulence for man. A comparatively large number of cases of Malta or undulant fever, some of which were of the bovine variety, have been reported by the medical profession as having been infected through milk.

It is true that the disease in cattle is widespread and that thousands, even millions of human beings are constantly exposed, yet the recognized cases of undulant fever are comparatively few. However, since the symptomatology of the disease is often obscure or characteristic of other maladies, a diagnosis may be incorrectly made. The agglutinin absorption test is the method of choice in uncertain cases and many clinicians now prefer that all Widal and Wassermann sera shall be also tested for undulant fever. This procedure has uncovered many cases which otherwise would not have been diagnosed. Like typhoid, diphtheria, septic sore throat, tuberculosis, and other milk borne human infections, this disease can be effectually prevented in the human through the pasteurization of milk, except when the infection is gained through an occupational hazard as in abattoirs or in the laboratory.

MARGARET L. JOHNSON, Secretary.

* * *

Delta County Medical Society

"First Aid" was the principal subject at the April meeting of the Delta County Medical Society. Dr. J. E. McConnell of Somerset delivered the paper, which was discussed by all members attending. A dinner at the Delta House preceded the meeting, which was held in the offices of Dr. W. S. Cleland. A. F. ERICH, Secretary.

* * *

El Paso County Medical Society

On Monday evening, March 17, Dr. R. B. H. Gradwohl, director of the Gradwohl Laboratories of St. Louis, Mo., addressed the El Paso County Medical Society on "The Clinical Value of the Schilling Test," and exemplified his talk with many interesting examples from his own experiments.

The April meeting of the El Paso County Medical Society was held Wednesday evening, April 9, at the Colorado Springs Day Nursery. Dr. E. L. Timmons delivered a paper on "Feeding in Infancy and Childhood," and Dr. J. B. Hartwell gave an address on "Obstructions of the Urinary Tract." Both meetings were well attended.

W. A. CAMPBELL, JR., Secretary.

* * *

Larimer County Medical Society

After one of the famous chicken dinners at the Wayside Inn at Berthoud, Colo., the regular monthly meeting of the Larimer County Medical Society was held in the moving picture hall, with Dr. W. W. Barber of Denver giving a very interesting talk on "Blood Transfusion in Infants and Children." His talk was followed by moving picture reels showing the methods of transfusion in children. The talk and pictures were so instructive that the discussion took the form of a questionnaire, which was enthusiastically entered into by both the local members and visitors. The following guests were present: Drs. O. M. Gilbert and Carbon Gillaspie of Boulder, Dr. W. L. Snair of Louisville, Dr. C. C. Fuson of Milliken, Drs. C. E. Sidwell, G. R. Hageman, J. A. Matlack and John Andrew of Longmont and Dr. and Mrs. M. W. Cooke of Erie, in all making about fifty present. No business meeting was held.

LOWELL LITTLE, Secretary.

Morgan County Medical Society

Drs. Lowell Little and C. H. Platz of Fort Collins were guests of the Morgan County Medical Society at its March meeting. Dr. Little addressed the Society on "Periodic Health Examinations," and Dr. Platz gave a paper on "Meningeal Hemorrhage in the New-Born." Both papers were thoroughly enjoyed and evoked a good discussion by members attending. The Morgan County Medical Society deeply appreciates the effort put forth by members from other counties who come to give the Society papers, and sincerely hopes that others will do so in the future.

EMMETT R. JOHNSON, Secretary.

* * *

Northeast Colorado Medical Society

The Northeast Colorado Medical Society held its regular monthly meeting Thursday evening, April 10, at the Sterling city hall. Members of the Society first met at dinner at the Graham Hotel at 6 p. m. and afterward adjourned to the city hall for the business session and scientific program.

Drs. A. L. Cooper of Scottsbluff, Neb., and F. B. Young of Gering, Neb., were the guests of the Society and gave a most interesting illustrated lecture on Paleopathology. They showed about 100 lantern slides depicting the bone pathology of extinct animal life of prehistoric times as preserved in the geological strata of those remote periods.

E. P. HUMMEL, Secretary.

* * *

Otero County Medical Society

Dr. Frederick M. Heller, president of the Pueblo County Medical Society, was the guest speaker at the April meeting of the Otero County Medical Society, held Thursday evening, April 10, in Rocky Ford. Dr. Heller delivered a most interesting paper on "Some of the Newer Ideas in Nephritis."

WARD C. FENTON, Secretary.

* * *

San Juan Medical Society

The spring meeting of the San Juan Medical Society, held Saturday, April 12, was primarily given over to business and organization problems. A dinner at the Red Lantern Cafe, Durango, preceded the meeting, which was held in the offices of Dr. A. L. Burnett.

Following the business meeting Mr. Harvey T. Sethman, executive secretary of the Colorado State Medical Society, addressed the members on changes that have been effected in the state organization since creation of the executive office. He emphasized the ability of the office to perform personal services for members, and efforts that are being made to eliminate illegal practice by members of the healing cults.

Dr. Burnett presented an interesting case report, with x-ray plates, of an unusual fracture of tibia and fibula.

The Society heard representatives of the dental association who spoke on co-operation between the two professions in the San Juan district.

R. L. DOWNING, Secretary.

COLORADO NEWS NOTES

BOULDER—The new nurses' home at the Boulder, Colorado, Sanitarium was dedicated with formal ceremonies Saturday afternoon, April 19.

COLORADO SPRINGS—Dr. Alex M. Forster, chief of staff of Cragmor Sanitarium, was the principal speaker before the Omaha-Douglas County Medical Society, Omaha, Neb., April 22. His subject was "Heliotherapy in Tuberculosis," illustrated with motion pictures.

DENVER—Dr. John S. Chase has resigned his commission as major in the Colorado National Guard and his position as state military surgeon. Governor Adams has not yet chosen a successor.

DENVER—The State Board of Medical Examiners on April 1 revoked the license of Dr. F. H. Weidlein, Palisade, Colo. Dr. Weidlein was charged with having falsified credentials in applying for license and taking the required examination. Hearing of charges against Dr. S. S. Craig was postponed three months to give Dr. Craig an opportunity to appear in person. Dr. Craig is now in California and is charged before the board with unprofessional conduct in connection with newspaper advertising.

DURANGO—Dr. H. C. Turrell has been appointed chief medical examining officer for the sixth district of the Eighth Corps Area in connection with the citizens military training camp. Dr. Turrell's district includes five San Juan basin counties.

DENVER—Dr. Maurice Levy and Mrs. Leah Weiner Kornman were married Friday, April 11, by Justice E. E. Oviatt in Littleton. Dr. and Mrs. Levy are enjoying a honeymoon in Texas and expect to return to Denver soon to make their home at 1350 High street.

DENVER—Dr. Harmon Tremaine, formerly of Denver, has established his practice in Boise, Idaho. In a recent letter Dr. Tremaine subscribed to Colorado Medicine and sent his regards to Denver friends.

DENVER—Dr. James J. Waring was elected president of the Denver Tuberculosis Association at its annual meeting at the Brown Palace Hotel, April 15. Other officers named were Dr. Henry Sewall, vice president; Dr. R. P. Forbes, vice president; Mrs. L. W. Swan van Tassel, treasurer, and Mrs. Ethel V. Fraser, secretary. Miss Jessie L. Lummis remains as executive secretary.

DEL NORTE—Dr. C. C. Pugh, formerly of Saguache, has established his practice in Del Norte in partnership with Dr. A. B. Gjellum.

DURANGO—Dr. F. G. Ebaugh, Dr. Carl Wagner and Miss Grace Buckley conducted a mental hygiene and child guidance clinic at the Durango High School, April 11 and 12, on behalf of the Colorado Psychopathic Hospital.

GUNNISON—Dr. John P. McDonough has returned to his practice after five weeks of illness during most of which time he was in the Rio Grande Hospital at Salida.

LAMAR—Dr. N. M. Burnett has been named a delegate to the 1930 International Hygiene Exhibition and World Health Congress in Dresden, Germany.

PUEBLO—Dr. J. Crum Epler has been advanced to the rank of colonel in command of the 328th Medical Regiment, United States Army Reserves, according to advices from the War Department. The appointment gives Dr. Epler the highest rank possible in the Military Reserve Corps.

WALSENBURG—Dr. S. Julian Lamme plans to leave Walsenburg soon for a six months' trip to Europe.

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE AND HOSPITALS

The Social Service Department at the Colorado General Hospital is performing two separate and distinct functions.

First, it has charge of admissions to the Clinic. This means that the social workers pass upon the financial eligibility of patients applying for free clinic care, and recommend rates for patients admitted through the Out-Patient Department. An income scale graded according to the size of the family and based on a recent scientific study of the cost of living is used as a guide. However, other factors such as the nature of the patient's illness, probable length of treatment, future ability to work, etc., must be considered in determining eligibility questions. If it is decided that a patient is able to pay for private medical care, he is referred back to his own doctor, if he has one; or if not, names of physicians on the staff in rotation are suggested to him. During the first three months of 1930, 199 patients, or 12½ per cent of those applying for admission were thus referred for private care. The aim of the department is to have every patient feel that he can receive at the Colorado General Hospital advice as to the best medical care obtainable for his particular complaint, whether he is found eligible for care in the clinic or is rejected and referred to the private physician.

Thus the Social Service Department in its administrative capacity in connection with admissions has the dual responsibility of protecting the interests of the doctors in relation to their private practice, and of seeing that eligible applicants in need of medical attention actually receive it.

Second is the function of aiding the doctor in the diagnosis and treatment of patients. The department is too small to be able to cover the ground here, but intensive work is being done in pediatrics, gynecology, and obstetrics, and one worker is assigned to work with the county commissioners in arranging for the discharge and follow-up of all county patients.

Sometimes a physician needs more information before he can make a satisfactory diagnosis. Often his prescription does not consist of medication, but of recommendations for rest, diet, or change of occupation. Unless the help of someone outside the patient's family can be enlisted, he often knows that his orders cannot be carried out. He, therefore, calls upon the social worker. She, in turn, must know and use all available resources in the community. Last month twenty-seven social agencies in Denver and thirty-eight agencies or individuals outside Denver, including county commissioners in sixteen counties, were called upon to help make possible the treatment.

The aim of hospital social service is to increase the proportion of successful treatment. The economic aspects are obvious. When the cardiac patient is educated to understand his restrictions, and the diabetic patient to understand his diet, and suitable occupations found for them, they do not return as "repeaters" to be an added expense to hospital and county.

Another service performed at the request of staff physicians is that of keeping in touch with patients whose medical condition a doctor wishes to follow because of special scientific interest. One example of this is the work in connection with the March Clinic. This year the department arranged admission for twenty-five of the cases.

HELEN J. ALMY.

The Psychiatric Social Service Department has two main functions—social treatment and social education. It fulfils these through its activities in the Out-Patient Clinic; the hospital; three base clinics; hospital and state-wide academic and lay lectures, and research and statistical studies.

In order that treatment may be most effective, the social worker obtains a history from the home, employer and school, as well as studies and recreational activities where so often are located the causal factors underlying the obvious symptoms. For this reason, new patients are encouraged to make appointments for admission to the Clinic in advance. The department is responsible for the psychometric examinations given to all new patients. After the social data is collected, the clinical examination made and the results evaluated, the worker interprets them to outside sources and helps the patient put into action the recommendations received. Since an important function is the teaching of medical students, the student must not only be supplied with adequate histories, but follow through the social mechanisms in operation during the process of treatment.

The department averages three workers in training, gives a series of lectures to the post-graduate nurses and a course in psychology to the nurses in training, as well as psychometric examinations to all nurses entering training. Many of the lectures to lay groups throughout the state are given by the social worker.

Social service offers a co-operative service for the local agencies; that is, the agency collects and prepares the history data, and later carries through the treatment recommended by the psychiatrist under the supervision of a psychiatric social worker. Since September about one hundred patients have been treated in this way, with an expression of satisfaction from the co-operative workers as they are learning the technique of more intensive psychiatric case work. The teaching of intelligent understanding and methods of treatment for behavior to other social groups is another responsibility, as intensive treatment on the great bulk of patients referred to us can never be adequately done otherwise.

The work has increased so rapidly that each psychiatric worker is responsible for more than one hundred and sixty patients—one hundred patients more than is considered an average number on which adequate work can be accomplished. Were it not for the out-patient services of the psychiatrist and psychiatric social worker, a large percentage of the adult patients would be hospital cases. Likewise in the children's work, problems are adjusted in the home and community that are preventing delinquent careers and psychotic manifestations in later years. The emphasis in a psychiatric program is prevention and consequently it is impossible to measure the results of work, but a few statistics will illustrate that the patient desires psychiatric service.

Total number of individual patients attending clinic in 1926, 1,575; 1927, 1,872; 1928, 1,820; 1929, 1,934.

In the near future, more details about professional standards and special techniques of service rendered by the social worker will be published.

RUTH LLOYD.

COLORADO OPHTHALMOLOGICAL SOCIETY

December 21, 1929

Lacerated wound of the eyeball

Dr. W. H. Crisp presented a man, aged thirty-six years, who four weeks earlier had dropped a glass bottle, a piece of which had bounced up and made a V-shaped cut in the left eye, involving cornea, sclera, lens, and probably the ciliary body. At the Denver General Hospital Dr. R. W. Danielson had covered the cornea with a double conjunctival flap. The eye remained red and photophobic. The iris was caught in the corneal scar. The lens had apparently undergone a good deal of absorption, but there was only a partial fundus reflex, and the vision was limited to vague outlines of large objects. Would there be a definite advantage in attempting to divide the anterior synechia?

Discussion. Dr. Edward Jackson stated that on several occasions he had been struck by the rapidity with which these eyes clear up after the section of iritic adhesions, but it should be remembered that all such eyes should be kept under observation. It was his impression from the single examination that this eye would probably quiet down without sympathetic involvement.

Dr. C. E. Walker dwelt upon the fact that the ciliary body of this eye had been involved in the injury and that this was the most important single feature. He felt that there could be no useful vision and that the eye would be lost ultimately, and that there was much danger in leaving such an eye in too long. He felt that it should be removed.

Dr. Melville Black suggested the removal of the remaining lens substance in order to hasten recovery.

Preretinal hemorrhage

Dr. James M. Shields presented Mr. A. W. W., aged twenty-six, who was seen with a preretinal hemorrhage in the macular region of the left eye on November 15, 1929. The hemorrhage had appeared half an hour after the lifting of a fifty-pound weight. The case was shown at the November meeting.* There was seen in the macular region a sausage shaped hemorrhage projecting forward and slightly downward and temporally into the vitreous. Vision was reduced to 6/20. At this meeting the case was again presented. Vision had returned to normal; but no definite scotoma could be elicited. The macular region presented a finely granular, slightly pigmented appearance.

Discussion. Dr. Jackson thought that when he first saw the case about five hours after its occurrence in November there was much edema and therefore the vessel from which the hemorrhage occurred was not seen at that time. However at the present time a vessel is clearly visible in the region of the hemorrhage and it is entirely possible that the bleeding occurred from this vessel.

Diabetic cataract

Dr. John McCaw exhibited Mr. E. P. W., aged twenty-six, a machinist. He was admitted to the hospital in July, 1926, in diabetic coma. By the use of large doses of insulin, 150 units daily, consciousness was soon regained and his life saved. During the night of October 20, 1926, the vision of both eyes was suddenly lost. At the time of the examination on the following day bilateral diabetic cataracts were diagnosed. The left eye had been needled six times. The last needling opened a large aperture through the lens substance so that at the present time with a plus 11 sphere he gets practically normal vision. The only complication encountered during these needlings was a rise of tension following the last operation. This was controlled by the use of eserine salicylate and hot packs.

Discussion. Dr. James M. Shields mentioned a case where a diabetic cataract developed during a period of ten days, during which time the vision was reduced to perception of light.

Dr. Strader mentioned a case of diabetic cataract he had seen recently where the vision changed very rapidly from hyperopia to myopia.

Dr. Frank Spencer reported a case of typical bilateral diabetic cataract which developed in a woman, thirty-nine years of age, during a period of three months.

Monocular trachoma

Dr. John A. McCaw also presented Mr. C. F. R., aged thirty-four, locomotive engineer. He stated that six years ago a hot cinder lodged on the cornea of the right eye and that after its removal an ulcer formed. Sometime either before or after this occurrence the eye became infected with trachoma. Treatment had been given at different times during the past four years. The vision had been gradually reduced to 20/200. Examination of this eye showed a drooping of the upper eyelid. The conjunctiva of the upper eyelid was thickened, as was also the tarsus. A few trachoma bodies were submerged in the conjunctiva at the inner end of the tarsus. The semilunar folds and caruncle contained trachoma bodies. The cornea was very irregular and vascular. The interesting feature was the involvement of the semilunar fold and the part that this played in keeping up the irritation of the eye. The bacterium granulosis was obtained from the secretions by Dr. Phillips Thyeson.

Discussion. Dr. William H. Crisp mentioned three cases where the clinical appearance so resembled trachoma that such a diagnosis would have unquestionably made by most ophthalmologists. However, in each of these three cases the clinical appearance was due to some extraneous influence or infection other than trachoma. It was most difficult to diagnose them from true trachoma.

Dr. Edward Jackson referred to the work of Dr. McHenry in regard to the treatment of trachoma. This work was described at the last meeting of the American Medical Association.

Dr. Strader emphasized the point that Dr. McHenry makes in regard to close inspection for trachoma follicles in the caruncle. He stated that the late Dr. Gifford had emphasized this point more than thirty years ago.

Renal retinitis

Dr. William C. Finnoff showed Mr. A. L. S., aged thirty-six years. When first seen on May 21, 1929, he complained of blurred vision and frontal headaches after close work. Under cycloplegis, hyperopia and hyperopic astigmatism were found and lenses were prescribed. At that time the media were clear, the vessels good, and the fundi normal.

Mr. S. had scarlet fever as a child, with acute nephritis, and has had trouble off and on ever since. He was in the hospital eight years ago on a milk diet. For the past three years he has been on a salt-free diet. He has had Bright's disease and for the past four years has been running a high blood pressure. The systolic blood pressure has averaged 180, and the diastolic has re-

*See Colorado Medicine 27: 139 (April), 1930.

mained constant at 112. The renal function test has been low. There was always albumin and all types of casts present in the urine.

He continued to work without difficulty until the fourth of November, 1929, when he was seen again and complained of blurred vision in the left eye. At this time with correction the vision of the right eye was 20/20—, and the left eye 20/70+. The center of objects seem blurred. The outline of the left disc was obscured and numerous flame shaped hemorrhages were present in the fundus, surrounding the disc. There were a few small, white transudates scattered over the posterior pole. The blood pressure was 170/112. There were small hemorrhages in the region of the disc of the right eye and the disc margin was slightly blurred. The condition progressed rapidly and when last seen the vision of the right eye was 20/200 and that of the left 6/200. Both discs were markedly swollen, the edges blurred, there were hemorrhages and exudates throughout the fundus with typical transudates in each macula.

A case of proptosis for diagnosis

Dr. William C. Finnoff also showed Mr. S. H., aged fifty-one years. Four years ago he became very nervous and lost weight with typical symptoms of toxic goitre. Shortly after the appearance of the general symptoms the eyes began to protrude and have remained prominent ever since. He was advised to have a thyroidectomy but refused operation. The basal metabolic rate in 1925 was + 41. The nervous symptoms gradually disappeared and he regained his normal weight (240) and sense of well-being. The proptosis, however, continued. He consulted him on September 30, 1929, because of an increase in the proptosis of the right eye, and stated that this symptom had become worse in the last three or four months. The vision of the right eye was 20/20 +., and the left eye 20/20 +. The basal metabolic rate was —19. The thyroid gland was not enlarged and there was no evidence of hyperthyroidism. X-rays of the skull were negative. The eyes protruded straight forward and were only slightly restricted in their motion.

There was no bruit or evidence of a mass in either orbit. The goitre was pronounced quiet, and he was advised against operative interference. The cornea of the right eyes was 33 mm. in front of the outer orbital rim, and the cornea of the left eye measured 27 mm. from the corresponding point. There was a slight congestion of the veins of the right eye, otherwise the fundus was normal. The visual fields were slightly constricted, but the patient's answers were very inaccurate.

Foreign body

Dr. W. A. Sedwick reported the case of S. J. H., aged forty-seven, school teacher, and a very intelligent patient. He came for refraction in August, 1929. He stated that perhaps two or three times a year his right eye would become swollen and slightly red with some pain, and that this passed off in twenty-four to thirty-six hours. On everting the lid of the right eye the patient complained of some pain from the pressure. Nothing of significance was seen. The tarsal conjunctiva was quite red and somewhat follicular in character and there was a small amount of serous discharge. The patient was told that he had a catarrhal conjunctivitis and that it should be treated before an examination was made. The patient returned the following day and when the lid was everted he again complained of pain. A more thorough examination was made, and there was found and removed from the upper fornix a pine twig 15 mm. long and 1.5 mm. in diameter. The patient at first was not willing to believe that the twig was removed from his eye. However, he finally vouchsafed the information that nine years previously when on a run-away horse he was carried through a pine copse. He sustained a slight corneal wound, which healed kindly under the care of an oculist. He made a positive statement that at no time or in any other way had he ever been in an accident or circumstances where it would have been possible for this to occur.

WOMAN'S AUXILIARY

San Juan Unit

The San Juan Unit of the Woman's Auxiliary held its regular quarterly meeting in Durango the evening of Saturday, April 12. Two of the members were hostesses at dinner preceding the business session. Out of a membership of fifteen, twelve were present, five from out of town. The doctors are pleased because these Auxiliary meetings stimulate attendance at their medical society meetings, which are held at the same time.

MRS. H. J. CORPER,
State Publicity Chairman.

An antidiuretic hormone

Marcel Labbé, Boulin and Justin-Besançon reported recently to the Société Médicale des Hôpitaux that they have isolated from the posterior lobe of the pituitary a hormone which controls diuresis. Two milligrams of their extract were found sufficient to reduce a diuresis of fifteen litres to one of 450 c.c. The extract may be administered either by injection or by insufflation.

Malaria and general paresis

Since malaria deliberately induced has proved a useful remedy in the treatment of general paralysis the question has occurred to Dr. Sequeira as to whether neurosyphilis is less common in areas where malaria abounds. In the Kenya and East Africa Medical Journal he asks for data on the relative frequency of general paralysis in the malarial and non-malarial but syphilised areas of East Africa. One wonders whether no figures are available as to the proportion of syphilitics who develop syphilis of the nervous system in the malarial and non-malarial regions respectively of the United States.

THE COLORADO STATE MEDICAL SOCIETY

OFFICERS, 1929-1930

President, William Senger, Pueblo.
President-elect, W. A. Kickland, Fort Collins.
Vice-Presidents, 1st, John B. Crouch, Colorado Springs; 2nd, Burgett Woodcock, Greeley; 3rd, Charles E. Condon, Leadville; 4th, E. H. Munre, Grand Junction.
Secretary, F. B. Stephenson, Denver.
Executive Secretary, Mr. Harvey T. Sethman, 466 Metropolitan bldg., Denver; telephone KEystone 0870.
Treasurer, L. W. Bortree, Colorado Springs.
Delegates to the American Medical Association: Senior, J. W. Amesse, Denver, term expires 1930; Alternate, L. H. McKinnie, Colorado Springs, term expires 1930; Junior, John R. Espey, Trinidad, term expires 1931; Alternate, J. J. Waring, Denver, term expires 1931.

Councilors:

		Term expires
District 1.	Ella A. Mead, Greeley	1930
District 2.	G. P. Lingenfelter, Denver	1934
District 3.	Geo. D. Andrews, Walsenburg	1933
District 4.	W. W. Crook, Glenwood Springs	1931
District 5.	A. J. Nossaman, Pagosa Springs	1932

Constituent Societies, Times of Meeting, 1930. Secretaries

Arapahoe County—Last Monday of each month; secretary, V. G. Jeurink, Littleton.

Boulder County—Second Thursday; secretary, Margaret L. Johnson, Boulder.

Chaffee County—First Tuesday of each month; secretary, G. W. Larimer, Salida.

Crowley County—Second Tuesday of each month; secretary, J. A. Hipp, Olney Springs.

Delta County—Last Friday of each month; secretary, A. F. Erich, Delta.

Denver County—First and third Tuesday of each month; secretary, C. H. Darrow.

El Paso County—Second Wednesday of each month; Secy., W. A. Campbell, Jr., Colo. Springs.

Fremont County—Fourth Monday of each month; secretary, Archie Bee, Canon City.

Garfield County—Last Thursday of each month; secretary, R. B. Porter, Glenwood Springs, Colo.

Huerfano County—Third Thursday of each month; secretary, J. M. Lamme, Walsenburg, Colo.

Kit Carson County—Quarterly, first Monday of December, March, June and September; secretary, Wm. L. McBride, Seibert, Colo.

Lake County—First Thursday of each month; secretary, J. C. Strong, Leadville.

Larimer County—First Wednesday of each month; secretary, Lowell Little, Fort Collins.

Las Animas County—First Friday of each month; secretary, M. C. Albi, Trinidad.

Mesa County—First Tuesday of each month; secretary, V. T. De War, Grand Junction.

Montrose County—First Thursday of each month; secretary, F. G. Didrickson, Montrose.

Morgan County—Last Monday of each month; secretary, E. R. Johnson, Fort Morgan.

Northeast Colorado—Second Thursday in each month; secretary, E. P. Hummel, Sterling.

Northwestern Colorado—Second Thursday of each month; secretary, F. J. Blackmer, Steamboat Springs.

Otero County—Second Thursday of each month; secretary, Ward C. Fenton, Rocky Ford.

Prowers County—First Tuesday of each quarter; secretary, Geo. S. Williams, Lamar, Colo.

Pueblo County—First and third Tuesday of each month; secretary, George A. Unfug, Pueblo.

San Juan Medical—Second Saturday, January, April, July and October; secretary, R. L. Downing, Durango.

San Luis Valley—Fifteenth of each month; secretary, Sidney Anderson, Alamosa.

Weld County—First Monday of each month; secretary, Florence Fezer, Greeley, Colo.

COMMITTEES FOR 1930

Committee on Scientific Work: Maurice H. Rees, chairman, Denver; Crum Epler, Pueblo; C. Gillaspie, Boulder.

Committee on Credentials: F. B. Stephenson, chairman, Denver; John P. McDonough, Gunnison; C. A. Davlin, Alamosa.

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Committee on Publication: C. S. Bluemel, chairman, Denver; Wm. H. Crisp, Denver; George A. Moleen, Denver.

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EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT

THE ASTIGMATIC EYE

Much as we now know, there must be more to be known about astigmatism and its relief.

For years we, as oculists, have been studying astigmatism and many tests have been suggested and used in the discovery and measurement of this very important refractive defect.

More and more its importance is realized and only when these conditions are recognized and fully corrected can we hope for satisfaction in the use of our own eyes and those of our patients.

All oculists realize that astigmatism is not simply an unequal curve of the cornea but that changes in the lens also enter into the refractive problem.

The Ophthalmometer would be the ideal instrument if the anterior surface of the cornea was the only part to be measured. Such is not the case and in the opinion of most oculists the mental effect on patients is its chief value. Certainly careful examiners rarely use this instrument as a final measurement.

Various charts are in use and each has its own advocates and users. No one chart has yet been discovered which meets with the unqualified endorsement of the profession.

Some use the three line dial constructed on the model of a wheel with lines running from near the center to the hours as on a clock dial. Other men use fewer lines and some only two light lines. Some use shaded letters or other objects. The practical use of either the ophthalmoscope, or retinoscope in expert hands is fully recognized and in daily use, and great proficiency is often attained in their use.

We have discovered that when an electric light of about 75 watts is placed slightly to one side and a little in front of a mirror and the observer is placed a few feet in front of the mirror with one eye closed and the other slightly opened, if there be any astigmatism present there appears radiating away from the reflection of the light in the mirror a band of light. It requires a little careful observing to distinguish this band if the astigmatism is slight, but in cases of over one-half a diopter this band is quickly seen. The axis of the astigmatism is at right angles to the band of light.

The patient can be quickly taught to notice these bands and indicate their direction. From these bands the astigmatism may be corrected and checked with other tests. The slightest lack of alinement of the correcting cylinder can be noted and thus the true axis and amount can be discovered.

E. W.

OUR NEXT ANNUAL MEETING

The program for the annual meeting of the Wyoming State Medical Society is in the making.

For months the plans for our annual meeting have been undergoing study. Programs are not just born but the most careful consideration is given to balance them in order that the subjects considered may cover the questions which we of the West have to meet in every day life.

Especially fortunate shall we be in our clinical offerings. Monday morning from 9

to 11:35 will be spent as guests of the Medical personnel of the U. S. Veterans' Hospital No. 86.

This is a nervous and mental disease hospital and honestly we feel that the average Wyoming doctor can and will find there presented subjects of which he personally needs review more than any other. Outside of the State Hospital in Evanston and the U. S. Veterans' Hospital No. 86 there are no physicians in Wyoming who make or even claim to give nervous and mental diseases their special attention. Yet we as general practitioners are in daily contact with these cases.

Hence, we feel that the Monday morning clinic will be one of the most interesting and instructive clinics ever presented to the Wyoming State Medical Society.

On Tuesday morning at the Sheridan County Memorial Hospital medical and surgical clinics will be held.

On Monday afternoon four papers will be read and discussed. This year more time for discussion will be given and enjoyed. Then as the day draws to a close we shall drive up to cool Piney Creek in the shadows of the Big Horns. There we shall eat, there we shall play. If you have ever enjoyed the delightful cool, pine-laden atmosphere of Piney you will know what is in store.

Tuesday afternoon will be given over to scientific papers and discussion. A golf trophey will be played for and won at the Sheridan Country Club where all members of the State Society and their wives and daughters will be most welcome guests of the club.

The Elks have offered the use of their beautiful building for our meetings, and they will do all in their power to make your stay in Sheridan as pleasant as possible.

The June number of Colorado Medicine will contain the program and announcements. In the meantime it's up to you to make your plans to attend.

Monday and Tuesday, July 14 and 15, is the time; Sheridan, Wyo., the place.

E. W.

WYOMING NEWS NOTES

CARBON COUNTY—The physicians of Carbon county, Wyoming, have recently organized a County Medical Society and elected the following officers:

President ..... Raymond Barber
Vice President ..... J. D. Wilson
Secretary-Treasurer ..... C. L. Wills

A charter has been issued and the members of the State Society feel very grateful to Dr. H. L. Harvey of Casper, J. H. Goodnough of Rock Springs, the two councillors who took special interest in the organization of this Society.

The best wishes of the Medical Profession are extended to this Society. Long may it live and bless mankind.

SHERIDAN COUNTY—Dr. C. E. Stevenson, President of the Sheridan County Medical Society, has been confined in his home on account of illness and has had to give up his practice temporarily.

Dr. O. L. Veach has recently returned from a trip to the Mayo Clinic.

The Sheridan Medical Society met April 14th and committees were appointed on time and place of meeting, hospital clinics, entertainment, golf tournament and entertainment of the ladies. The hotel committee was also appointed and, owing to the fact that there are no large hotels in Sheridan, this committee is going to have the hardest work of any of the committees. The importance of securing reservations cannot be overstretched because the middle of July is the time when the tourists' travel is the heaviest and hotel rooms are at a premium. The names of this committee will be found in next month's issue.

Physicians may not dispense narcotics

It is provided in the laws which govern the distribution of narcotics that none may sell, furnish, or dispose of, or have in possession with intent to sell, furnish, or dispose of narcotic drugs except upon a physician's prescription. The question has arisen in the Washington Supreme Court as to whether the law allows a physician, except upon a written prescription, to furnish a patient with a narcotic drug for future use, the drug to be taken away from the physician's presence by a patient. The Washington Supreme Court has ruled that he may not do so, inasmuch as he is entitled only to administer narcotic drugs but not to dispense them. If he wishes the patient to continue to take the drug away from his presence he must write a prescription which a druggist will be entitled to fill.



Class of 1930—Colorado School of Medicine

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UNIVERSITY NUMBER

Maurice H. Rees., M.D., Dean, University of Colorado School of Medicine and Hospitals, Acting Editor

EDITORIAL NOTES AND COMMENT

THE CHARLES DENISON M.D. MEMORIAL LIBRARY

The Library of the University of Colorado School of Medicine is known as the Charles Denison M.D. Memorial Library since its establishment depended greatly on the generosity of Mrs. Charles Denison. It was her gift which helped to furnish and equip the quarters which the Library occupies at the present time. In endowing this library it has been Mrs. Denison's desire to establish a memorial to her husband and only son who were both prominent in the medical world. In addition to her original gift she has established a yearly endowment which is to be used exclusively for the purchase of back journal files. This has made it possible for us to obtain rare and costly sets in order that our journal subscriptions might be complete. Our book plate was designed by Mrs. E. Waite Elder of Montclair and given to us at the expense of Mrs. Denison. A very lovely portrait by J. C. Johansen of Dr. Charles Denison and one by Sieffert of Dr. Henry Denison were given to us by Mrs. Denison and are in the library at the present time. If doubt has ever prevailed in the minds of any as to the reason for calling our library "The Charles Denison M.D. Library," I am sure this bit of history will banish all that.

When the School of Medicine took up its present abode in 1924 our library consisted of approximately 7,500 volumes which had been brought here from Boulder. This number included both books and journals and was indeed a fine nucleus with which to begin. Since that time our accessions have increased by 8,162, making a total number of 17,662 volumes at the time of writing. It will readily be seen that the number of accessions has doubled during the past five years.

At present we have a subscription list of 312 journals. Of this number 59 are German, 17 French and 4 Italian. We have added to our list from time to time as the demand for material increased. Of this number of journal files we have 126 complete sets. This is perhaps a small number but such volumes are becoming very scarce and almost priceless.

In addition to journals, monographs and textbooks, we have 3,230 reprints. These have proven most useful in the past and at present we are attempting to index them more fully so as to make them of even greater usefulness in the future.

Pamphlets, too, have been carefully preserved and at an early date will find themselves available for use and will then undoubtedly prove their value even thought they are troublesome at times.

It will be noted that we have the ordinary material which make up any library whether medical or otherwise. As yet we may not boast the possession of unusual or rare collections, though we do have a few books more than a hundred years old. Such priceless possessions add much to any library, but first it is most essential to supply the present

day needs, help promote medical research and education. After we have been entirely successful in this accomplishment our attention will turn to the field of ancient history.

We are open daily from 8:30 a. m. to 9:30 p. m. except Saturdays and Sundays. Saturdays we are open until 5 p. m. and Sundays from 10 a. m. to 12 noon, and from 1 p. m. to 4 p. m. These hours are somewhat shorter during vacation periods. We stand ready and most willing to serve not only our own staff and students but also any practicing physician in the state of Colorado. Any service we may render will be a most happy task for us. L. B. E.

TECHNIQUE OF CONFERENCE

The most interesting feature of the First International Congress on Mental Hygiene, held in Washington this last month, was the technique adopted for the discussion of papers.

Each author was required to present his paper in advance of the congress and it was printed and made available to delegates at the time of registration. At least that was the intention. If many delegates were found clamoring for "advance" papers half-way through the congress, that was due only to failure of the mechanics of organization under the stress of a very heavy registration. No paper was read in extenso to the sessions of the congress but the author was allowed ten minutes in which to resume its content. Ten minutes each were allowed to three or four others whose names appeared on the program to discuss the paper and there remained some twenty minutes for free discussion from the floor.

We have been impressed with the possibilities of this technique. Like all democratic methods it demands responsibility in proportion to the opportunity which it affords. Delegates who discussed and criticised papers which they had not read with any care, or even had not read at all, were likely to waste the time of the conference. On the other hand those who had seized the opportunity to meet at leisure and with intelligent deliberation the ideas presented in the papers were able to raise the level of discussion to quite unusual heights.

This technique might in our judgment be advantageously adopted at the annual sessions of our state medical societies. Since papers read on such occasions are usually destined for publication in the state medical journal, the expense of printing them in advance of the meetings need not be a consideration. Extra time at the actual sessions would be available for the presentation of slides or moving pictures, as well as for discussion. The advance papers should be available through the executive secretary of the Society at least two weeks before the opening session of the meeting. Delegates who wished to contribute to the discussion could signify their intention in advance so that ample time could be assigned to them. The value of discussion under such circumstances should be notably enhanced. J. R. E.

CORRESPONDENCE

The following open letter addressed to Dr. Horace G. Wetherill, Monterey, Calif., by the Colorado State Board of Medical Examiners, is in reply to Dr. Wetherill's letter addressed to the Board on March 5, 1930, and published in the April number of Colorado Medicine:

Dear Dr. Weatherill: May 19, 1930.

Your letter of March 5th addressed to the Board of Medical Examiners and also published in Colorado Medicine has been read by the members of the Board and I am directed by them to write this letter of explanation to you.

It is apparent that you do not understand the difficulties of administering a medical practice act which does not have an annual registration provision nor the purpose of this provision which was added to the Colorado law by the last General Assembly.

The necessity in the public interest of a law forbidding any person to engage in the practice of medicine who has not demonstrated his moral fitness and his knowledge of the science to persons selected by or on behalf of the people of the state for whose benefit such a law is enacted must be apparent to all, especially to a physician. Furthermore, that the public has the right to prescribe the general duties, powers, limitations, and restrictions must be likewise apparent to every citizen of a democracy. No law can be passed or enforced which establishes standards of scientific training and knowledge beyond those which the licenses to chiropractors, under which they are permitted to treat patients by "palpation, nerve tracing and adjustment of vertebrae by hand," and these licenses are granted without examina-

average legislator deems necessary for the proper protection of the public.

Not only must care be taken in the granting of licenses, but a permanent board must be established to consider complaints against licentiates and revoke their licenses for demonstrated misconduct. For this purpose adequate records must be kept of the licenses granted and the location of the licentiates. In the past our records have shown only the facts disclosed at the time the application for a license was made. We have had no means of ascertaining whether any given licentiate who was not personally known to the Board was living or dead, or, if living, whether he resided in Colorado or elsewhere, or whether he was still engaged in the practice of medicine or following some other calling. The records of revocation proceedings before the Board disclose a number of instances in which persons have procured by purchase or theft licenses originally granted to others, and have practiced in this state a considerable time before the fraud was discovered. It is probably true that the cases so discovered were a relatively small proportion of the cases which have actually occurred. In all of the discovered cases it has been old licenses that have been mis-used in this way, which, in all probability, would have been revoked for failure to re-register under the present law, or, if registered, the Board would have a continuous record of the licentiate which would make impersonation by another more difficult to perpetrate and easier to detect. Furthermore, the Board will annually publish and circulate a roster of registered licentiates listed by counties, requesting information concerning any practitioner whose name does not appear therein. This publicity has already detected some cases of unlawful practice that might otherwise have escaped notice, and will deter many more from attempting to evade the law.

As for the registration fee, the right to practice a profession is a valuable right conferred by the state and is universally regarded as a legitimate subject of taxation, especially when the fees are used to pay the expenses of administering the licensing law. It is true that the law is not enacted for the benefit of the profession, but it cannot be denied that the licentiates derive a great benefit from it. As for the fact that you no longer reside in Colorado, there is no reason why you should retain your license here if you do not expect to return. You will always retain the certificate issued to you when you began practice as evidence of your honorable standing in Colorado, and there is no more disgrace in having your name omitted from the list of present licentiates than there is in the omission from the schedule of voters. Both are due to the fact that you have acquired a residence elsewhere. The clause permitting non-resident licentiates to retain their licenses upon the condition of annual registration and the payment of the fee is because many such licentiates intend to return and it quite often becomes necessary for us to investigate their record while out of the state, which is much more expensive than a local investigation. I have in mind a physician who served a term in an eastern penitentiary after leaving Colorado and then returned to this state after his discharge. A number of other similar instances might be cited.

In answer to your criticism that the discrimination between resident and non-resident licentiates is too great, I can only say that the bill as introduced in the legislature provided for a non-resident fee of twice the amount of the resident fee and the general assembly took the responsibility of the greater discrimination.

If your criticism goes to the method of selecting the Board, I can only say that a slowly changing board appointed by the governor is generally considered the best method of selection. Perhaps some other method could be found equally good which would be acceptable to the general assembly, but there would be no possibility of passing a law which would confer upon the members of the State Society the power of naming the board or restricting the governor in his power of selection. The political power of the cultists is too great to make such a change possible, if it be desirable, and that fact might just as well be recognized now as after a hard-fought battle before the legislature. Such a course would only result in the creation of multiple boards, which is the worst possible outcome of a difficult situation.

All practitioners of the healing art are doing or attempting to do the same thing, viz., to maintain the health or to restore the lost health of the patient. The only difference between the cultist and the regular physician is that the cultist limits his practice to a particular method of accomplishing the desired result, while the regular physician does not admit that there is any method of accomplishing the desired end which he may not lawfully apply if he finds it indicated. The regular physician ought not to consent to assigning control of any method of treatment to any board of cultists which could in any way restrict him in the practice if he saw fit to use it regardless of whether he considers it meritorious or not. There is a principle at stake which is more important than any single method of healing that has ever been devised. If the general practitioner consents to a limitation of his method of practice in a way which he now considers of no consequence, he may by that precedent be some time restricted in a manner which he considers vital. The practice of healing is just one thing and the licentiate should be controlled by just one board.

We do not mean to be understood as stating that we favor the granting of cultists' licenses. That is not the fact. It is far more desirable that no practitioner should be granted a license to practice by any method unless he can qualify for a general license, but it is impossible to pass such a law at this time, and, as stated above, would only result in the creation of multiple boards, which would, to use the old saw, be jumping from the frying pan into the fire.

Colorado probably has the best medical practice act in the United States, and it has been in nearly all respects favorably interpreted by our courts. No person can now obtain a general license to practice here unless he is a graduate of a school approved by the Board and has passed examinations given by the Colorado Board, or holds a general license granted to him on examination by a general licensing board of some other state. In the latter case he must also have a satisfactory practice record of at least one year. The Colorado examinations are by statute limited to anatomy, physiology, chemistry, toxicology, symptomatology, public health and sanitation, pathology, surgery, and obstetrics, which, it will be seen, are principally diagnostic subjects. Questions pertaining to materia-medica and therapeutics are forbidden. It is assumed that any person who knows the human body in health and disease will have learned some method of treatment that he is capable of administering.

It is true that under the law the Board grants

tion; that the only requirement for such a license is a good moral character, and graduation from a chiropractic school after attendance for eighteen months during which 2,000 hours of instruction work has been taken. It is also true that this is an undesirable feature of the law and that chiropractors ought to be required to obtain a general license on the same terms and conditions as other practitioners and that such a requirement would probably exclude almost all of them. But any person familiar with Colorado legislators and Colorado legislatures knows that the ideal law in this respect cannot be passed. The only alternatives are multiple boards or compromise. I have pointed out the evils of multiple boards, but the danger is not limited to chiropractors alone. The present compromise law prevented the creation of chiropractic, osteopathic, and napropathic boards, for the creation of which laws were then before the General Assembly. A physiotherapy board, electrotherapy board, thermotherapy board, and countless others would soon have followed. The only course for us to pursue is to insist on a single licensing board; to raise the standards of the cultists as high as we can, and to accept the best that we can get; to continue a policy of education with a view to bringing the cultist finally to the standards of the general licentiate; to deal fairly and honestly with the cultist while we control his license; to hold him to standards of honor and help him raise his standards of training; only so can we discharge our duty to the public.

We are not guardians of the public but servants. We have no right to try to force higher standards of licensure for the public benefit than the average man desires and believes to be fair and just. It is our right and duty to educate the public to the importance of elevating the standards of licensure, but we must recognize that the public has other advisers and is confused by conflicting advice. The average legislator who fixes the standards of legislation, honestly seeks the best solution of the question, and we have no right to condemn him for not placing himself unquestioningly in our hands. We must accept his decision not as final but as controlling until he sees a new light.

In conclusion I revert to your suggestion that the power of medical licensure should be in the courts. Courts have power to review the acts of licensing boards in refusing or revoking a license to ascertain if the ground alleged for such action was one authorized by statute, and to ascertain if the respondent had a fair hearing on proper notice, but not to review the decision on its merits. The esetablishment of standards of licensure and practice is not a judicial function, but a legislative one to be executed by administrative officers deriving their authority from the legislature, which prescribes their powers, limitations, and methods of procedure. The only judicial function to be performed in this connection is to ascertain if the Board had jurisdiction and proceeded in accordance with the statute in the matter of hearing the respondent before taking action.

There is nothing in a lawyer's training that makes him better qualified than a physician to prescribe the standards of professional honor and professional skill for a physician. Is it not a better practice to establish a single board of physicians which will establish a uniform standard of practice throughout the state than to leave the question to the courts? However, inasmuch as it is not a judicial question, it is not probable that the courts would accept the burden of solving it even if the legislature should attempt to put it on them. The education and moral standards of the legal profession are not superior to those of the medical profession and the method of selecting judges by popular election is not more likely to elevate the best man available to office than is the method of appointment by the Chief Executive, which is the manner of selecting members of the Board of Medical Examiners and federal judges. We have all heard of incompetent and corrupt judges, and there have doubtless been incompetent and dishonorable members of boards of medical examiners, but we must accept a fair proportion of such mistakes as inevitable. It is not probable that the average board member is less able or less honest, or less ethical or less moral than the average judge. The laws of chance become a certainty if a large enough number of cases be considered and it would seem that the control of the practice of medicine by boards of physicians is now sufficiently old to have established a fairly stable average. If it is not the highest possible standard it ought to be regarded as an acceptable standard.

I regret, Dr. Wetherill, that you, a citizen of California, take offense because the state of Colorado has seen fit to impose a tax on the license which you hold in this state if you wish to maintain it in effect, but its concellation will give the secretary one less license to keep on his records and there will be one less outstanding license that might at some time in the future fall into the hands of a fakir and be used here. Your prominence in the practice here would make such a thing very unlikely in any case, but in the case of the average slightly known physician the possibility would be much greater. You are now in default and your right to practice in Colorado is suspended until that default is removed. If it is not removed within three years your license will be automatically revoked. While this is the fact and law it is hardly conceivable that this Board would not immediately grant a man of your attainments a new license upon request.

WM. WHITRIDGE WILLIAMS,
Secretary-Treasurer.

The following letter, addressed to Mr. Harvey T. Sethman, managing editor, was received from the Co-Operative Medical Advertising Bureau of the American Medical Association, Chicago, on May 24:

Dear Mr. Sethman:

We wish to congratulate you on the many improvements that have recently been made in Colorado Medicine and especially on the local advertising which you have personally secured. Other features of the Journal apparently have kept pace with the increase in advertising and all of these features must convince the officers of your state society that no mistake was made when they decided to put a layman in charge of the Journal.

This was a pet plan of Dr. F. B. Stephenson and he earnestly advocated it for two or three years before the authorities adopted his suggestion. Naturally the increased expense had to be considered, but since that has been more than met by the increased business you have secured for the Journal, it must be gratifying to Dr. Stephenson and his friends that the plan adopted has fulfilled their expectations.

Dr. Stephenson is entitled to a good share of the credit for the present success of the Journal and this brief note is a small tribute to his foresight. E. W. MATTSON, Manager.

CATARACT PROBLEMS

MELVILLE BLACK, M.D.
Department of Ophthalmology, University of Colorado School of Medicine and Hospitals

The operation for cataract is the major operation of ophthalmology. It is an operation rarely attempted by other than experienced ophthalmologists. The endeavor has been to find methods of preventing the patient from "doing things" during the operation which would cause vitreous loss. During recent years "akinesis" has been brought forward as a means of preventing loss of vitreous. This consists in the injection of novocaine somewhere in the pathway of the fibers of the facial nerve which supplies the orbicularis, thereby making it impossible for the patient to squeeze the lids together and to cause vitreous expulsion. Of late I have been using the O'Brien method, which consists in injecting the facial nerve where it passes over the condyle of the lower maxilla just in front of the tragus.

It is my practice to fasten a suture into the upper lid, just above the lashes. This suture serves two purposes. The first is to hold the upper lid fixed while the speculum is being removed; and the second to lift the lid up, place it over the wound, and then to hold the lid shut by fastening the suture to the cheek with a bit of adhesive plaster.

While in Vienna last summer I had the pleasure of seeing Guist operate, and was at once impressed with the efficacy of his speculum. This instrument is so made that the blades may be raised away from the eye. A suture placed in the surerior rectus, well above the cornea, is passed through a hole in the upper blade of the speculum; and, as the suture is tied, the eye is turned downward and fixed. With a good akinesis and this speculum the patient cannot do himself harm by moving the eye. This relieves the patient of the fear of making ocular movements during the operation which will spoil the result.

One of the problems of this operation is to provide rest and comfort. Old people should not be put to bed until after the operation. The rigid position of "flat on the back" is soon productive of backache and restlessness. It is comfort that we want and must have. This frequently may be obtained by allowing the patient to turn upon the unoperated side as soon as restlessness begins. Changing the position by raising the back and knees will often make the patient comfortable. When he tires of this position let the bed back again. It is always a good plan to keep a cataract patient's head high; it militates against intraocular hemorrhage. A patient who cannot be made comfortable in bed should be placed in an easy chair, wrapped in blankets, and allowed to remain there until he wishes to return to bed.

Cathartics should not be administered until at least the fourth day and then only because enemas have failed.

These are only a few problems in cataract extraction. There are many more which we cannot touch upon in the space allowed.

The Great Bread Controversy

After consultation with a very distinguished group of physiologists and biochemists, Dr. A. F. Woods, of the U. S. Department of Agriculture has issued the following pronouncement on the great bread controversy:

White and whole-wheat breads are both wholesome foods. They are among the most important and cheapest sources of energy and protein in the diet. The composition and value in the diet of whole-wheat and white bread vary not only with the differences in the flour used, but also with the amount and character of other added constituents.

Whole-wheat or graham flours, which contain the bran and germ portion of the grain, have lower bread-making capacity and are more susceptible to spoilage, so cannot be handled as readily commercially. In general they contain more essential minerals and vitamins and more roughage than white flour.

No person subsists on one food. Each food should be chosen in relation to the other constituents of the diet. Bread, either white or whole-wheat, is always an economical source of energy and portein in any diet. The form may be left to the choice of the individual when the remainder of the diet is so constituted as to contribute the necessary minerals, vitamins, and any necessary roughage.

MULTIPLE MYELOMA

C. T. BURNETT, M.D., AND W. C. JOHNSON, M.D.,
Departments of Medicine and Pathology, University of Colorado School of Medicine and Hospitals

While not excessively rare this disease is sufficiently uncommon to justify a brief report. According to a very good statistical survey by Geschickter and Copeland,[1] 425 cases had been recorded up to 1928 since the first definite recognition and description of the condition by MacIntyre in 1850. It is a disease chiefly of males, occurring most frequently in the fourth to sixth decades and always terminating fatally, generally within two years.

The early clinical manifestations are rheumatoid pains, often ascribed to a neuritis. The pain occurs early, is often nocturnal, fugitive, and frequently aggravated by exertion, especially lifting. As the ribs are early sites of involvement, these pains are frequently precordial in type and since associated with exertion may lead to an erroneous diagnosis of heart disease.

Following this painful stage is a period of "pseudo" arrest, during which pains are entirely absent. This intermittency offers excellent opportunities for the quack therapeutist since this stage may persist for many months to one year. Finally appears as a climax a stage of excruciating pains.

The early sites of involvement by this neoplasm are the flat bones, ribs and vertebrae. Later, organ metastases may occur chiefly in the liver, spleen and lymph nodes. On the other hand, the case may terminate fatally without organ metastases.

Different types of myeloma have been described, corresponding to the various cells found in red bone marrow, but the commonest type is composed of cells resembling plasma cells.

The first evidence will often be associated with an unexplained fracture (spontaneous) which curiously heals rapidly and easily. Since the involvement of the lower ribs and vertebrae may suggest abdominal disturbance, an unexplained abdominal complaint may prove to be due to the existence of this type of tumor. The diagnosis mainly rests

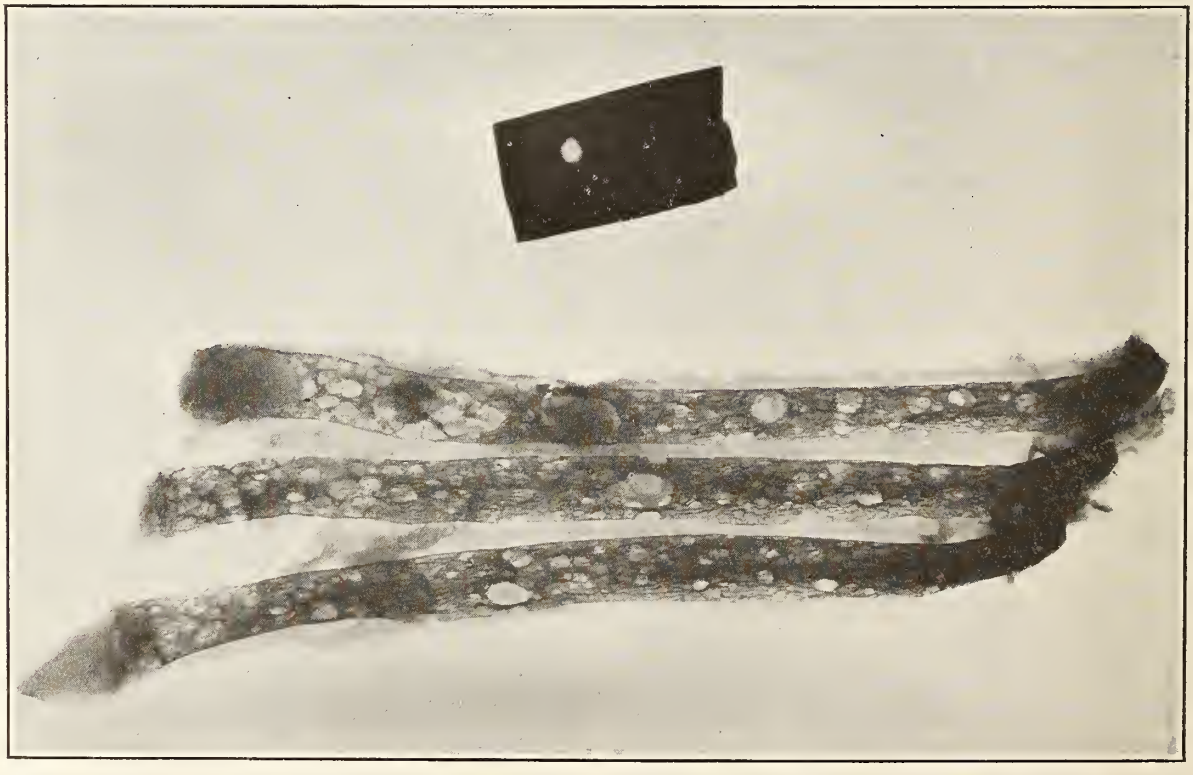


Fig. 1. X-ray of ribs removed at autopsy. Note honeycombing without change in external contour. The small piece shows a nodule in the skull.



Fig. 2. X-ray of skull during life showing rarified areas.

upon the presence of a "punched-out" appearance by x-ray of the bones, notably the ribs, flat bones and vertebrae. When advanced involvement of the spine occurs a characteristic stance is noted, in which, with a protruding abdomen, the ribs are found to be resting on the pelvic brim. To maintain equilibrium the feet are placed apart and the shoulders are braced back.

A laboratory finding stressed by the early writers was the frequent presence of the Bence-Jones body in the urine of these patients. This also occurs with extensive metastatic tumors of bone, in leukemia, in myxoedema, and in several other conditions. Its origin and cause are not known. When present it may be periodic in occurrence or continuous, and the quantity of the albuminous body varies greatly.

CASE REPORT

The patient here reported was under observation in the Colorado General Hospital during a six months' period of 1929. He was a farmer of 67 years. At 34 years of age the patient had cystitis; at 35 a tuberculous testicle was removed and one year later the second was removed, likewise tuberculous. At 40, following a "grippe," he developed an abscess described as located "between the left kidney and the pleural cavity"; this was drained for three months.

During the last year there were symptoms of myocardial insufficiency; that is, occasional heart consciousness, dyspnea on exertion and swelling of ankles toward evening. The appetite was somewhat diminished but the weight was practically stationary.

The earliest symptom of the present illness was noticed two years before admission into this hospital when, following a horseback ride, on dismounting he experienced a sudden, severe and sharp pain in the right hip. Over a period of twenty-one months there were several similar attacks; then a period of three months before entry

in which the attacks increased in frequency, intensity and duration. The pain was described as a dull and constant ache, increased on motion to a sharp pain, affecting chiefly the right hip and back, but at times involving the thorax (precordial), left hip and shoulders. The feet, ankles, knees, elbows and hands were never involved. During the day there was never a sudden change in the location of the pain, but frequently on awakening he noted the pain to be in a different location than on retiring.

Physical examination on entry showed congestion of the anterior pillars and tonsils, the tonsils being cryptic. The heart appeared normal in size, but the heart sounds were faint; rate 90, blood pressure 148/96. Both testes were absent. The only local sign noted which was possibly associated with the patient's complaints was some tenderness to pressure over the right sacro-iliac joint.

The provisional diagnosis was chronic tonsilitis and recurrent hypertrophic arthritis.

The unsuspected condition of the bones was first revealed when an x-ray was taken of the spine and hips to determine the nature of the supposed arthritic condition. The discovery by Dr. J. L. Harvey of rarified areas in both ilia occasioned further x-rays of the skull, chest and long bones, upon which the disclosure of numerous "punched-out" areas of rarefaction and extensive honeycombing of the ribs was the basis for a diagnosis of probable multiple myeloma.

Repeated examinations for Bence-Jones protein in the urine were negative. Other laboratory examinations showed only an anemia (Hb 45 per cent, red cells 4,.480,000) and a slightly raised blood calcium (Four estimations gave 12.09, 10.6, 12.8 and 12.2.).

As some doubt remained as to the diagnosis it was considered justifiable to remove a small section of rib for pathological examination. The patient consented to this, and under local anesthesia Dr. C. F. Hegner removed a portion of the tenth right rib.

Biopsy report: The section of rib, 7.5 cm. in length, contained several small nodules of soft yellowish-white tissue, over which the cortex was thinned out so that they were covered only by periosteum. These nodules could be shelled out from the marrow, entirely free from any bone fragments.

Microscopic examination showed the nodules to be composed of medium sized round or oval cells with round nuclei which were often eccentric. The cytoplasm was pinkish staining, homogeneous, and free from granules. The cells bore a resemblance to plasma cells, but were not perfectly typical in nuclear structure. The oxidase reaction was negative.

Diagnosis: Multiple myeloma, plasma cell type.

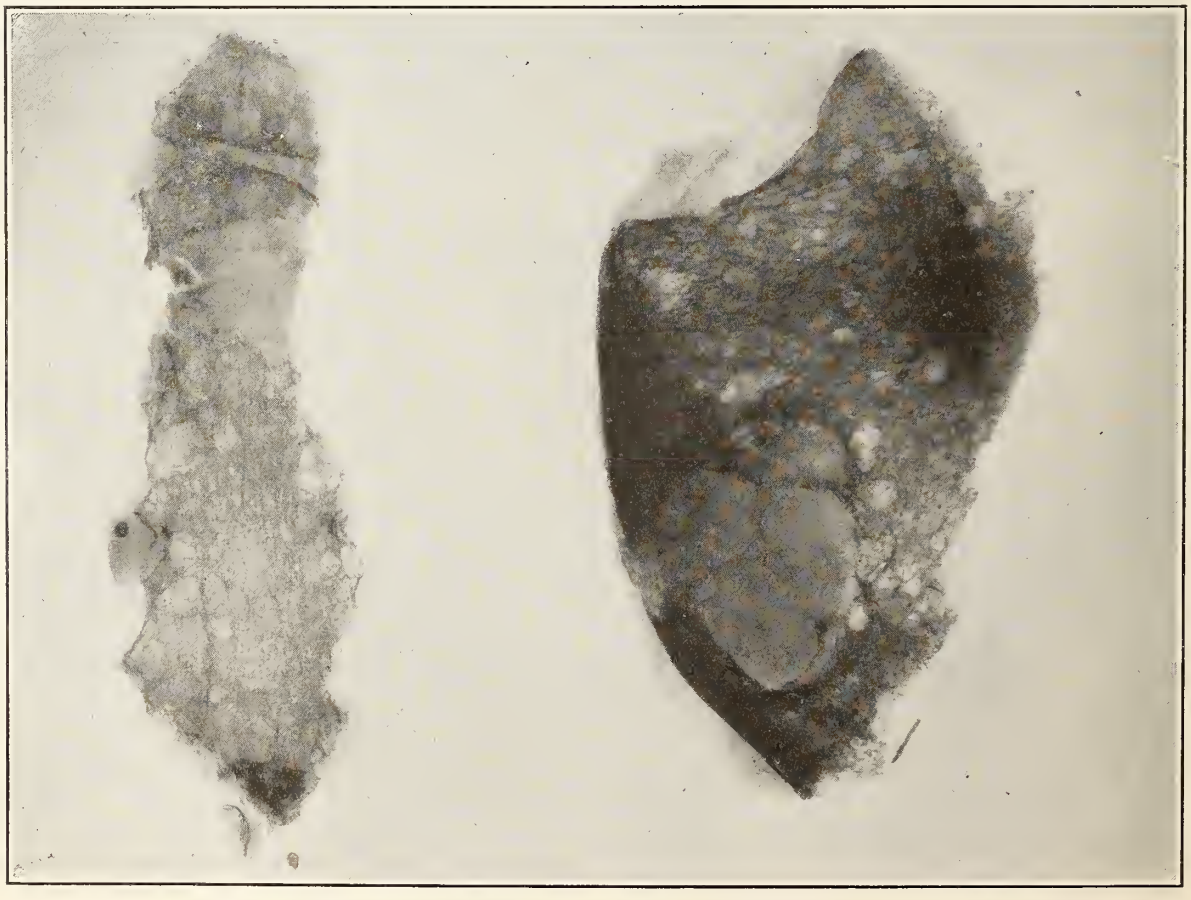


Fig. 3. X-rays of sternum (left) and portion of ilium. Autopsy specimens.

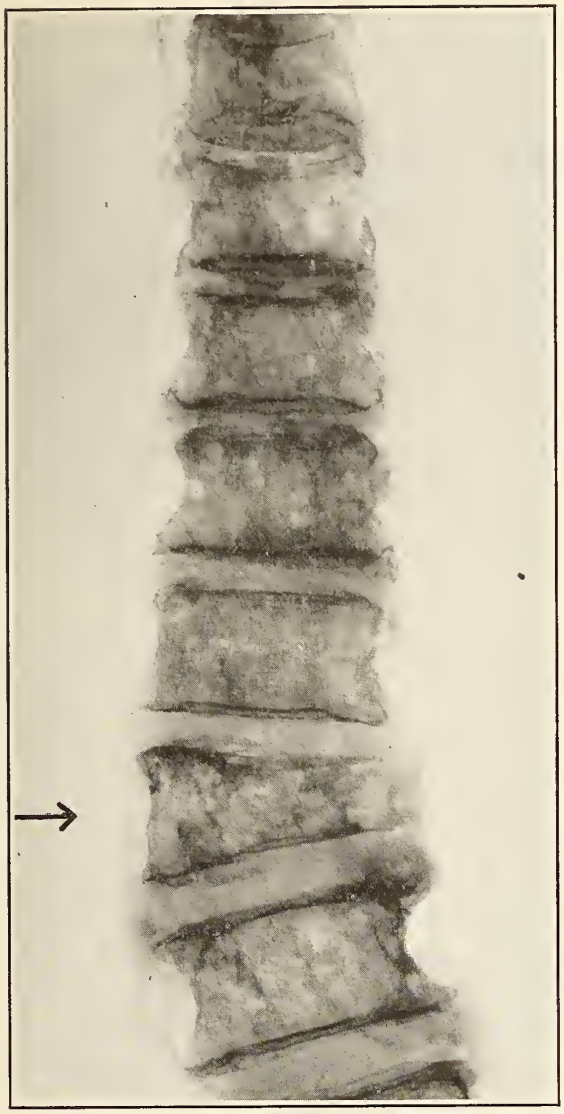


Fig. 4. X-ray of lower dorsal and lumbar vertebrae removed at autopsy. Note telescoping of vertebra indicated by arrow.

About five weeks later the patient developed a lobar pneumonia. The course was stormy but followed by complete recovery. During the fifth month in the hospital he became mentally disturbed, weakness increased and death occurred after six months.

Abstract of Autopsy Report

Anatomical Diagnosis—Multiple myeloma, involving chiefly ribs, sternum, pelvis and skull; metastases in liver; multiple spontaneous fractures of ribs; confluent broncho-pneumonia; focal necroses of adrenals; nephrolithiasis, hydronephrosis, fibrosis and atrophy of left kidney, perirenal fibrosis; absence of both testicles; atrophy and fibrosis of prostate; fibrous scars of apices of both lungs; fibrosis and hyalinization of right pleura; atrophy of spleen; melanosis of colon.

The immediate cause of death was an extensive confluent broncho-pneumonia involving both lower lobes.

Very numerous nodules of rather soft, pale, yellowish or pinkish-white tissue were present in the ribs, showing very distinctly through the periosteum in many places, but nowhere perforating it or causing any projection above the surface. (See Fig. 1.) The ribs showed multiple recent and healed fractures.

The skull (Fig. 2), sternum, and ilia (Fig. 3) also showed numerous nodules. Only a few could be recognized in the spine, but more were revealed by the x-ray (Fig. 4). The largest nodule found, and the only one which projected beyond the surface, was in the left occipital bone. Here a nodule about 2.5 cm. in diameter had perforated the bone in both directions, extending slightly into the cranial cavity as well as towards the neck. Portions of the shafts of the right humerus and femur were removed, but no nodules could be seen. They contained only normal, yellow, fatty marrow.

The organs were very carefully searched for metastases. None were found except in the liver, where there were two very small, whitish nodules, each about 2-3 mm. in diameter.

Microscopic examination of various nodules, including the metastases in the liver, uniformly showed the same type of myeloma cells described in the biopsy report. In sections of the peribronchial lymph nodes and spleen a number of cells were seen which closely resembled the myeloma cells, but as these were scattered and nowhere in the form of nodules, they could not be distinguished definitely from normal or inflammatory plasma cells, which may occur in those organs.

Comment

This case emphasizes the importance of complete x-ray studies of all patients showing obscure "arthritic" or "neuritic" symptoms, and that such studies limited to one or two joint structures may fail to show pathological changes where a complete survey may demonstrate characteristic lesions.

According to Dr. J. L. Harvey, Roentgenologist at the Colorado General Hospital, who furnishes us with the following opinion on differential diagnosis, the chief conditions from which multiple myeloma must be distinguished in x-rays are osteitis fibrosa and metastatic malignancy.

Osteitis fibrosa occurs in the young, and the long bones are chiefly affected. There is a grouping of the trabeculae into bundles which enclose the cystic areas, as distinguished from the "punched-out" appearance of myeloma and malignancy.

Myeloma occurs in older people, is a slow growing multiple lesion whose favorite sites are in the flat bones, producing sharply outlined focal spots of destruction. The trabe-

culae are not displaced, nor is the cortex expanded.

Metastatic malignancy may simulate myeloma so closely as not to be distinguished by x-ray alone. The absence of extreme cachexia would favor myeloma as against extensive metastasis.

The fact that myeloma nodules may be located definitely by the x-ray furnishes an opportunity for definite confirmation of the diagnosis by the pathological examination of a section of bone removed by biopsy. Morris and Falconer[2] and others have recommended the study of conditions of the bone marrow in the living patient by the examination of specimens obtained from trephining the tibia. In the case of multiple myeloma, however, the tibia may be only very slightly involved, while the rib offers a much more favorable site.

Recent literature indicates that the Bence-Jones protein does not occur in as high a percentage of the cases as had been formerly supposed. In this case repeated examinations failed to demonstrate it at any time during the six months' period of observation.

Blatherwick[3] reported the calcium metabolism in multiple myeloma at a high level owing to the excessive absorption of calcium from the bones. Our own case showed a slight elevation of blood calcium but this is probably of no great value in diagnosis.

Aside from the myeloma a point of considerable interest in this case is the persistence of the sexual function after castration, which was performed at the age of 35 on account of tuberculosis of the testicles. He was married four times, had children by each of the first two wives, was then castrated and married twice thereafter. He stated that there was no change in the sexual desire or potency for a period of more than 20 years after the castration: as the end of this time would fall at the normal period of waning sexual desire and potency, it is evident that castration only affected his reproductive powers. In countries where castration is practiced for other than medical reasons this fact has long been recognized; in fact, similar observations led the Chinese to adopt the radical and complete method of castration, including the amputation of the entire penis, where the eunuchs were to be members of the imperial household.

The exact classification of this disease still remains somewhat unsatisfactory. It differs from ordinary malignant tumors in its multi-centric origin and in its infrequent involvement of regions outside the red marrow. On the other hand, it bears some resemblance to leukemia in its involvement of the marrow and in the fact that some of these myeloma cells may occasionally escape into the blood. The blood picture of the true myeloid leukemia is never obtained. The relation of myeloma to myeloid leukemia becomes simpler if leukemia is, as many believe, a malignant tumor of the marrow.

BIBLIOGRAPHY

[1]Geschickter, C. F., and Copeland, M. M.: Multiple Myeloma, Arch. Surg. 16:807-863 (April), 1928.

[2]Morris, L. M., and Falconer, E. H.; Intravitae Bone Marrow Studies; Preliminary Report; Description of Marrow Trephine and Experimental Studies, Arch. Int. Med. 30:485 (Oct.), 1922.

[3]Blatherwick, N. R.: Myeloma, Am. J. M. Sc. 151:432 (March), 1916.

SUBACUTE COMBINED SCLEROSIS

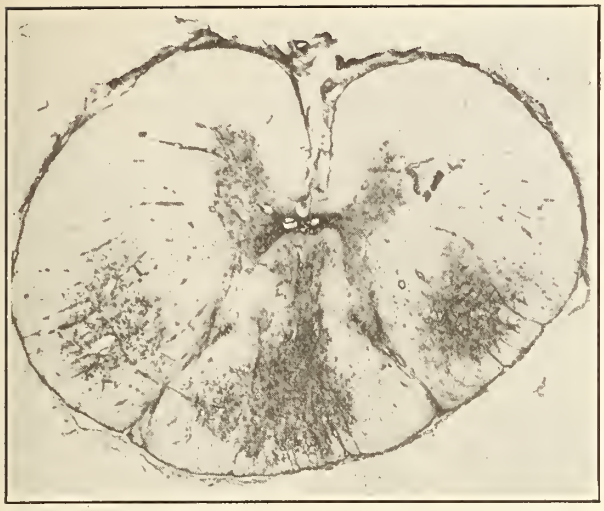
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Every clinician who has had any considerable experience in the management of cases of profound anemia, especially the primary type, must have been impressed with the frequency with which distressing neurological symptoms have complicated the course.

These consist of numbness and lightning pains in the legs and various types of paresthesias with a spastic condition of the muscles.

Of the motor symptoms muscular weakness and ataxia are the most prominent. The reflexes are usually anomalous, the knee jerks exaggerated or abolished with the presence of double Babinski. Loss of posture sense is usually constant. Usually there is a disas-



Cross section of cord in lower dorsal segment. Dark areas showing secondary degeneration of lateral and posterior columns.

sociated anesthesia in that pain sense is more profoundly affected than tactile or thermal. The symptoms involve both the arms and legs but are always more pronounced in the latter than in the former.

In the majority of cases the neurological symptoms although distressing are not deadly and contribute but little to the cause of death. Some, however, become bedridden from the ataxia and muscular wasting and die from the neurological involvement, especially visceral and trophic disturbances.

The syndrome simulates ataxia paraplegia or combined sclerosis a chronic degenerative disease of the spinal cord without assignable cause. Sometimes, especially where anemia is supposed to be the underlying cause, the symptoms develop rapidly and in a short time the patient becomes bedridden. To his type the term subacute combined sclerosis is applied.

It is interesting to note that in the cases associated with pernicious anemia when the blood picture has been brought to within normal limits by our modern methods of treatment, the neurological symptoms persist. It had been generally supposed that all cases of subacute combined sclerosis had anemia as the primary cause. In the Archives of Neurology and Psychiatry, July, 1921, Hamilton and Nixon reported forty-one cases in all of which the two diseases were associated. Since that time experience has shown that this spinal disease may run its course without any changes in the blood picture.

I wish to report the following case to substantiate this view:

CASE REPORT

J. P. S., aged 60 years, is a salesman; a widower with two children living in good health.

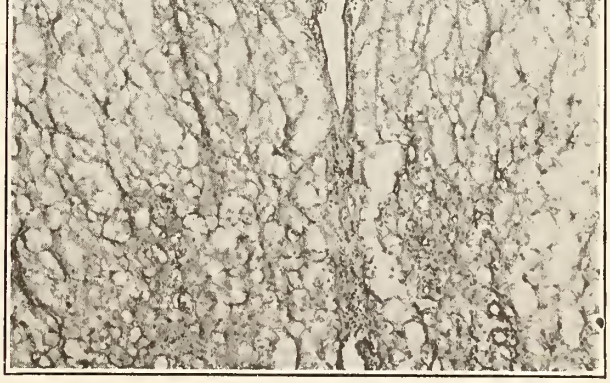
The family history is negative except that one brother died of pernicious anemia. The patient has had no serious illness but for a number of years has been troubled with abdominal distress, i. e., gas-belching, distention, indefinite pains with occasional attacks of diarrhoea. He came to Denver four years ago feeling a change in climate might be of benefit; the symptoms persisted. In November, 1927, he was operated for chronic appendix. The operative diagnosis was obliterative atrophic appendix. The operation gave no relief. The general weakness became more pronounced but the patient was able to work. After operation he began to have peculiar sensations in his feet and legs with shooting pains especially in the ankles. He was able to work till October, 1929, when he was taken with severe attacks of vomiting and diarrhea. He was confined to bed for a week. With the subsidence of abdominal symptoms, numbness and paresthesia in legs were more pronounced and he was unable to walk on account of ataxia of the legs. There was no visceral disturbance at this time. The differential blood count at this time excluded a pernicious anemia as it had done on previous and did on subsequent occasions. The color index never was above 0.7. No anisocytosis, poikilocytes or normoblasts.

The weakness of the legs increased, loss of posture sense was marked, paresthesia and pains persisted with anomalous reflex activity. To a less degree a similar condition existed in the arms. The cranial nerves were not involved. He became incontinent and died from exhaustion.

The gross and microscopic pathology found on autopsy are as follows:

External Examination: The body is that of an elderly, well developed, very well nourished, white, male person. The external examination reveals no noteworthy pathology.

Internal Examination: The autopsy was limited solely to the exploration of the spinal cord. The entire course of the spinal canal was exposed and



70x showing vacuolations in posterior columns.

the spinal cord removed in toto together with the entire dura. On the outer surface of the dura was found no noteworthy pathology. Upon opening of the dura, the spinal cord was exposed which appeared to be considerably atrophied. Between dura and arachnoid large brittle sclerotic placques were found attached very loosely, occasionally to the inner surface of the dura, in other places to the outer surface of the arachnoid. There are no evidences of inflammatory exudate or of hemorrhages at any place in the spinal cord or on the covering sheaths. Cross section of the cord reveals moderate deformity of the posterior wing of the gray matter as well as an ill defined outline between the white and gray matter, especially so on the posterior portion of the cord. No evidences of tumor formation are detectable.

Histological examination of the spinal cord shows extremely far advanced degenerative changes in the axis cylinders of the posterior horn and in the decussated pyramidal tract in the lateral section of the spine involving uniformly decussated pyramidal tracts on both sides. At most places in the lateral and posterior horn degenerative changes took place and only extremely large vacuoles are found in place of the axis cylinder and the organic tissue substance is represented only by the interstitial glial tissue. Also moderate round cell infiltration was encountered in the glia. Some, but much more moderate, degenerative changes were found in the anterior portion of the spinal cord, but the motor cells in the anterior horn and their axis cylinders appeared to be intact.

Autopsy Diagnosis: Subacute posterior lateral sclerosis of the spinal cord and sclerotic placques of the dura and arachnoid.

DOBOS.

It is now generally believed that both the spinal changes and the anemia when they occur in the same individual are due to some underlying cause.

MERCUROCHROME AS AN ANTISEPTIC DURING LABOR

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"During the last eighty years the mortality and morbidity from childbirth have remained practically unchanged; they are just as high today as they were before the days of Pasteur and Lister and the discovery of antiseptics. This is a lamentable fact when we consider our present knowledge of bacteriology and its relation to modern surgergy."

In view of his statement, quoted above, we have been very much interested in the work done by Dr. Mayes of Brooklyn in the attempt to lower the mortality and morbidity of various obstetrical cases by the use of mercurochrome as a vaginal antiseptic in labor. We shall present a report of 200 cases delivered in the Colorado General Hospital 100 consecutive cases in which no attempt was made to sterilize the birth canal by any special antiseptic solution. The second 100 consecutive cases in which mercurochrome with a modified Mayes technique was used as a vaginal antiseptic during labor. Before reviewing these cases which were classified by Drs. W. H. Mast and A. W. Glathar of the Resident Staff of the Colorado General Hospital, we shall briefly speak of the various classifications of morbidity and of the Mayes technique in a general way.

The standard of morbidity varies in the different clinics and the percentage varies accordingly. Any patient whose temperature reaches 100. 4 F. on two successive days following delivery, not including the day of delivery, and occurring not later than the tenth day we have considered a "morbidity." This is the standard accepted by the Johns Hopkins Hospital. This is practically the same standard as that of the American College of Surgeons. The University of Michigan considers as morbid all cases showing a temperature of 100. 4 F. at any time from delivery to discharge, temperatures being taken every four hours. Goodall and Wiseman prefer to consider as morbid all cases in which the temperature exceeds 99 F. degrees on any three consecutive days, exclusive of the first twenty-four hours; and, in addition, all cases that are morbid but afebrile such as subinvolutions and thrombophlebitis.

The following is the technique used by Dr. Mayes: when the patient is admitted, she is carefully prepared, and the external genitalia are cleansed with green soap and water, the perineum is sprayed or painted with a 4 per cent solution of mercurochrome, and after inserting two fingers into the vagina, the pelvic floor is depressed and a

dram of mercurochrome is instilled and worked well into the folds of the mucous membrane and around the cervix or presenting part. This should be repeated at least every eight hours during labor, before delivery, and before all vaginal examinations.

If the delivery is prolonged, or if there is any question of the perineum or vagina being soiled by feces or otherwise, repeated instillations should be made.

If there is a laceration, or if episiotomy is performed, the torn or cut surfaces should be cleared from blood, and mercurochrome applied before suturing.

If a cesarean section is indicated, there should be at least two instillations, an hour or more apart, before the operation.

If the membranes are ruptured and the case is potentially infected, or if delivery is attempted and disproportion found to exist, which threatens the life of the infant, then we would advise the instillation of three ounces of a 1 per cent solution of mercurochrome into the amniotic sack, and after one hour, the performance of a classical cesarean section.

Daily vaginal instillations of a 1 per cent solution of mercurochrome aid in the healing of perineal lacerations and add to the comfort of the patient.

Mayes reports in 1000 consecutive cases a lessened morbidity of more than 50 per cent, he also claims that it is a valuable procedure before cesarean section, induction of labor and vaginal examinations. Baldwin of Michigan using the University of Michigan standard of morbidity, using a spray of a 4 per cent alcoholic aqueous acetone solution of mercurochrome at the onset of labor and again at the time of delivery, with one ounce of a 2 per cent aqueous solution of mercurochrome into the vagina every six hours until delivery, found no marked reduction in the maternal morbidity. Williams using the Johns Hopkins standard of morbidity found very little advantage in the use of mercurochrome over the routine of cleansing with green soap.

Our technique was that of Mayes without the spraying of the thighs. The maternal morbidity of 100 consecutive cases in which mercurochrome was not used was 42 per cent higher than the maternal morbidity in 100 consecutive cases in which mercurochrome was used.

In view of the fact that our figures fairly well corroborate those of Mayes, we desire to report them with some little enthusiasm, and because of a certain added sense of security which this procedure gives to the mind of the obstetrician, especially in those more critical and difficult situations.

THE DIAGNOSIS AND TREATMENT OF BRONCHIECTASIS WITH LIPIODOL BY THE PASSIVE METHOD

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When we speak of bronchiectasis most of us think of the patient who raises a large amount of foul smelling sputum which separates into the characteristic three layers, and believe that the diagnosis in such cases presents little difficulty. This condition was formerly thought to be quite rare; however, since methods have been introduced which enable us to visualize the tracheobronchial tree, we find that abnormal dilatation of the bronchi is very common. Many cases formerly diagnosed as tuberculosis or chronic bronchitis are now known to be bronchiectasis.

The clinical picture as described in standard textbooks[1, 2, 3] undoubtedly represents the advanced stage of this condition. If diagnosis is not made before marked pulmonary suppuration occurs, we have lost valuable time; hence it is important to recognize this condition as early as possible in order to institute proper treatment. Bronchography is necessary in order to make an accurate diagnosis in this stage, as the symp-

toms and physical findings are relatively insignificant.

Ochsner[3] found dilated bronchi in 92 per cent of a group of young university students suffering from chronic bronchitis when he studied them bronchographically. Some of these cases had no sputum, representing the dry bronchiectasis; others had cough and sputum only when suffering from an acute respiratory infection.

In order to give all suspicious cases the benefit of bronchography, it is necessary to use a simple method of introducing the contrast substance, as many patients will not submit to the more difficult procedures. It is not the purpose of this paper to discuss the advantages and disadvantages of the various ways of introducing lipiodol into the bronchi, but to encourage a wider use of the so-called "passive method" of introducing lipiodol. This method is not only simple, but is as accurate and possibly even more accurate than some of the more difficult procedures.

Ochsner has made a wider use of this technic than any other person in this country. The idea was suggested by an accident which occurred while he was serving as an exchange assistant in the Zurich Surgical Clinic under Professor Clairmont[5]. Following an esophagoscopy for carcinoma of the esophagus, preceding which the pharynx had been completely anesthetized, the patient was given a barium meal in order to visualize the tumor radiographically. Much to the surprise of the observers, the barium was seen to pass into the trachea instead of the esophagus and caused a paroxysm of coughing. By following up the ideas suggested by this accident, the passive technic for the insufflation of lipiodol has been developed. Briefly stated, the procedure is as follows:[6]

"Following the use of an antiseptic mouth wash, the anterior surface of the anterior tonsillar pillars is painted with a 10 per cent cocaine solution. The anesthesia is continued until the swallowing reflex is abolished, as evidenced by immobility of the larynx on attempted deglutition. As soon as the anesthesia is complete, the patient is instructed to take about 3 cubic centimeters of a 3 per cent procaine hydrochloride solution into his mouth. He then tips his head backward, protrudes his tongue so that the procaine solution may enter the pharynx, leans slightly to the side which one desires to fill, and breathes. The procaine solution is used as an anesthetic to the tracheobronchial mucosa. As the anesthesia of the anterior pillar is only temporary, it is essential again to paint the anterior pillars with the 10 per cent cocaine solution. The patient is then placed behind the fluoroscopic screen and given 10 cc. of iodized oil and is instructed to assume the same position that he assumed while inspiring the procaine solution. The entrance of the oil into the trachea and bronchi is observed fluoroscopically. The patient expectorates the saliva that has collected in the mouth, following which he aspirates another 10 cc. of iodized oil."

In some cases it may be necessary to swab the anterior pillars a number of times in order to abolish the reflex. It is important not to allow more than about thirty seconds to elapse between applications of the cocaine and also to be sure that the swab is pressed well into the angle at the junction of the anterior pillars and the tongue. The saliva which accumulates should be expectorated each time before pillars are swabbed to avoid diluting the anesthetic. If the chin is elevated and the head held well back it is not always necessary to anesthetize completely the pillars as swallowing in this position is impossible even with only a partial anesthesia. It frequently aids to have the patient pull his tongue out and hold it, especially when the oil is being given therapeutically and no fluoroscopic observation is being made We have used a 10 cc. syringe to introduce the iodized oil over the posterior part of the tongue. This will avoid any unnecessary waste of oil.

Following a diagnostic insufflation a radiogram should be made to confirm the fluoroscopic findings and also as a permanent record. This should be done immediately since frequently the lapse of four or five minutes is enough to cause the radiogram to

be worthless, especially should the patient cough.

The advantages of the above described technic are several. The filling of the bronchi can easily be observed fluoroscopically and in this manner dilatation will be observed which cannot be shown in the radiogram. Because of its simplicity the method can be used in out patient or office practice, thus lessening the expense and inconvenience for the patient. It can be carried out by the internist or roentgenologist, the skill of the bronchoscopist being unnecessary. Because of the fact that there is no discomfort associated with the procedure, patients readily submit to repeated insufflations when necessary for therapeutic purposes.

Heretofore the treatment of bronchiectasis, both surgical[7] and medical[8], has been highly unsatisfactory. The repeated insufflation of lipiodol into the dilated bronchi which is made possible by the passive technic gives promise of being a valuable aid in such treatment. This form of therapy was suggested because of the relief of symptoms which frequently followed the diagnostic administration of the iodized oil.

Mattice[9] of the U. S. Veterans' Hospital in Portland has treated a series of cases and reports uniformly good results. Patients are again able to follow their vocations from which they had been precluded by reason of the excessive cough and foul expectoration. Ochsner[4] reports a series of 112 cases treated by this method. Thirty-two per cent were symptomatically cured; 12 per cent also showed radiographic evidence of cure; thirty-six per cent obtained symptomatic relief, following an acute respiratory infection had a temporary relapse; thirty-two were improved and are still under treatment. These results are very encouraging when we consider the high percentage of unsatisfactory results in other methods of treatment.

About eight months ago we began using the "passive method" of lipiodol injection in our clinic. We have as yet only a very limited number of cases, but our results both from a diagnostic and a therapeutic standpoint have been very similar to those reported by other men.

The first case in which it was tried therapeutically was a man 38 years old who had had asthma for eighteen years. When he came into the hospital he had cardiac failure as shown by difficult respiration, cyanosis and peripheral edema. He was having frequent asthmatic attacks and was raising large amounts of sputum. Routine treatment was administered for one month, during which time his cardiac and general condition improved. At this time lipiodol was given to determine the extent of bronchial dilatation; very marked sacculations of bronchi were found. According to the patient's statement, his sputum was much less and asthmatic attacks were much less severe following this procedure. He very readily submitted to a refill two weeks later, which was also followed by similar symptomatic relief; he was discharged and told to return for further lipiodol treatment. He returned two or three times for treatment and stated that he would be practically symptom free for a period of about ten days following his refills. Unfortunately we have lost track of the patient, but the last time we saw him he looked well and stated that he was working. Of course, in such an advanced case, permanent relief could not be expected, but for relief of symptoms it is well worth while even in these very advanced cases.

A young woman who is receiving the treatment at present illustrates typically the importance of the method both as a diagnostic and therapeutic measure. Her illness began with a chronic bronchitis at the age of 10 years. She was subjected to considerable exposure and had frequent colds during her younger life. Cough and expectoration increased until at the age of 16 she was raising 3-4 ounces of purulent, green sputum a day. At the age of 18 a diagnosis of pulmonary tuberculosis was made and two years later she was sent to Colorado for a rest cure; at that time she weighed ninety pounds. The diagnosis of pulmonary tuberculosis was confirmed clinically by two different Denver physicians but tubercle bacilli were never found. Two years' rest resulted in marked clinical improvement with a gain of some sixty pounds in weight

as well as a reduction of sputum to about one ounce a day.

Two years ago a chest plate made by one of our best x-ray men gave no evidence of pulmonary tuberculosis either active or healed. Her general condition was good but she still raised considerable sputum. She was married and gave birth to a baby five months ago, having no trouble during gestation or labor; nursing the baby, however, caused an exaggeration of symptoms. Very careful search for tubercle bacilli in our laboratories failed to reveal any, although x-ray showed small lesions at the right apex suggestive of old tuberculosis. A diagnostic lipiodol injection was given about six weeks ago which revealed definite bronchial dilatations more marked on the left side. Since that time she has had lipiodol three times, resulting in a reduction of sputum to about one-half what it was before treatment, and in the entire disappearance of the foul odor to sputum and breath. This case is of further interest in that it is complicated by a Monilia yeast infection. This yeast has been isolated twice, once last year and again this year after the return of the more severe symptoms.

The exact way in which the iodized oil works is not known. Oschner[4, 5] feels that there is an actual bactericidal action exerted, since definite bacterial counts have been made showing a reduction. Our chemists tell us, however, that the iodine is combined in such a way as not to be available. There is not conclusive evidence to show that the iodized oil is actually bactericidal at least in vitro[10, 11].

Mattice[9] believes that the oil puts the bronchi at rest by coating them over, thus giving the defensive forces of the body mechanism a better opportunity to check the disease process. It seems reasonable to think that if the mucous membrane can be coated over and thus protected from the irritating bacterial products, there would be a lessening of the mucous secretion. This would account for the fact that the day following the injection there is a marked reduction of sputum.

In view of the fact that no injurious effects have been reported even in cases of tuberculosis, and because such a large percentage of cases are improved it seems right that we should urge a wider use of this method with the hope that many chronic sufferers may be relieved of distressing symptoms.

BIBLIOGRAPHY

[1]McGrae: Osler's "Principles and Practice of Medicine," 1926, p. 629.
[2]Cecil: "Textbook of Medicine," 1926, p. 804.
[3]Stephens: "Practice of Medicine," 1926, p. 619.
[4]Ochsner: Am. Jour. Med. Sci., 25: 544 (March) 1930.
[5]Ochsner: Wisconsin Med. Jour., 25: 544, (Nov.) 1926.
[6]Ochsner: Jour. Am. Med. Assn., 93: 188, (July 20,) 1929.
[7]Sauerbrueb: Proc. 3rd Congress Internat. Soc. of Surg., 1911, p. 269.
[8]Whittemore: Boston Med. & Surg. Jour., 192: 182, (1927).
[9]Mattice: U. S. Vet. Bur. Med. Bul., 5:958, (Dec.) 1929.
[10]Neuswanger: Surg., Gynec., and Obst., 43: 169, 1926.
[11]Archibald and Brown: Jour. Am. Med. Assn., 88:1310, 1927.

Veterans' Hospital at Fort Lyon, Colorado, Has Place for Specialist in Pathology

The United States Civil Service Commission has announced that the Veterans' Bureau Hospital at Fort Lyon, Colo., is in need of a medical officer to serve as specialist in pathology.

The entrance salary is $3,800 a year. Higher-salaried positions are filled through promotion.

Those who are interested should write to the United States Civil Service Commission, Washington, D. C., or to the Secretary of the Thirteenth United States Civil Service District, Denver, Colo., and ask for examination announcement No. 51 and application blanks Nos. 2600 and 2398.

From the Psychopathic Hospital

A small boy, not yet ten years old, has been attending the clinics at the Psychopathic Hospital for certain psychological tests. His associates at school, hearing of this, did not hesitate to make public and uncomplimentary inferences. The small boy's reaction to these took poetic shape and was most fortunately salvaged by one of the hospital physicians:

"I'd like to be a moron
They do not have a care
They walk around, both in and out
And swallow lots of air
I'd like to be a moron
They do not give a d——n
I'd like to be moron,
My God! Maybe I am."

SCHILLING'S DIFFERENTIAL COUNT

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The value of the total and differential leukocyte count as a diagnostic aid in infections and inflammatory conditions is universally recognized, but that results are too often unsatisfactory has long been acknowledged, by both clinicians and hematologists. Several reasons for this may be given. The height of the total count does not always have a direct connection with the patient's resistance. The percentage of each cell type has wide normal limits which prevent detection of body response to mild degrees of toxemia. Physiological variations occur which are confusing. Realizing the defects of the usual methods, many workers have attempted to correct them. Arneth was the first to offer a fundamental improvement which, however, contained many technical difficulties. Schilling has made more practical application of Arneth's principles, with the result that the Schilling type of differential count gives promise of becoming a dependable diagnostic and prognostic method. The blood forming tissues of the body take part in the general process of resistance to any infection throughout its course. Changes in the blood picture occur early and will be present even before definite physical signs have developed, or when they are absent. These changes are not demonstrated by an increase in the total count, nor by an increased percentage of neutrophils, so much as by the progressive appearance in the circulation of immature neutrophils. Both the Arneth and Schilling methods are designed to record this phase of the reaction.

The formed elements of the blood are not developed in the general circulation, but arise from parent cells situated in various tissues. Whether or not all blood cells have a common ancestor, the hemocytoblast, from which the precursors of the cell types found in circulating blood develop, is in dispute. However it is established that in post-embryonic life, the granular leukocytes may be distinguished from the non-granular on the basis of their origin. The granulocytes belong to the myeloid series and originate from the myeloblast, a fixed tissue cell of the bone marrow. This series includes the myeloblast, premyelocyte, myelocyte, metamyelocyte and polymorphonuclear neutrophilic leukocyte. From the myeloblast also develop the basophil, eosinophil, which are differentiated by their staining reactions, and, according to some authorities, the monocyte. The nongranular leukocytes have as their precursor the lymphoblast, also a fixed tissue cell, which is situated in widely scattered lymphatic foci throughout the body and is not found normally in the bone marrow. They make up the lymphocyte series which contains the lymphoblast, large lymphocyte, small lymphocyte and plasma cell. The response to stimulation by the cells of both series is a tissue reaction and in the case of the granulocytes, may be called the bone marrow reaction. Stimuli may be either physiological or pathological. Pathological stimuli are usually bacterial in nature and produce a reaction which is reflected by both qualitative and quantitative changes in the cell content of the circulating blood. The alterations produced may be either positive (leukocytosis) or negative (leukopenia), depending upon the nature and intensity of the causative toxemia. Negative response may result from a toxin which inhibits cytopoiesis directly, or from a larger amount of one which in smaller concentration would cause a positive response. This response to stimulation by the blood forming organs is the basis of the leukocyte count in its clinical application. As Schilling's method is based upon Arneth's earlier work, it can be best explained by describing that of Arneth.

In 1904 Arneth published his observations upon the morphological changes in the nuclei of the polymorphonuclear leukocytes during infectious processes. He classified these

cells according to the number of segments in the nucleus, dividing them into five main classes. Class number one contains those cells whose nuclei are not segmented, and each higher class contains cells having a corresponding number of nuclear segments. As was shown by Arneth, the number of cells in each class, out of one hundred, varies only within narrow limits in health, but in the presence of an infection a decrease in the number of cells in the higher classes with an increase in those of the lower classes takes place. This change Arneth called "the shift to the left." There is evidence to show that the degree of nuclear segmentation parallels the age of the cell, and to explain the reaction, it is assumed that during the course of an infection, there is an increase in the number of young cells entering the circulation as well as an increase in the rate of cell destruction, which affects chiefly the older cells, they being less resistant to toxemia. These two factors acting together produce the "shift to the left." This reaction is constant in infection and varies with its severity, returning to normal with recovery. Clinical application of the method by Arneth showed it to be of definite value, but technical difficulties such as failure to properly classify atypical or distorted cells because of toxic or mechanical changes, and the length of time necessary to make the count, resulted in its being dropped, except by some workers in tuberculosis who continue its use.

Schilling's modification of Arneth's count depends upon the same basic principles of cell development, but includes not only the adult cell types, but their precursors as well, because as Schilling has shown, the reaction which is responsible for the shift to the left also brings about the liberation of certain cells from the bone marrow, normally not present in the blood. The bone marrow threshold lies between the cells of Arneth's group one (Schilling's "staff" cells) and their immediate precursor, the metamyelocyte, in the healthy individual. The count is made as a part of the ordinary differential, instead of separately as in the Arneth method, and the result is expressed as the percentage of the total number of all types of cell. In Schilling's count the leukocytes are classified as follows: (the percentages given indicate approximately the normal limits) Basophils, 0.25-1.0 per cent; Eosinophils, 1-4 per cent; myelocytes, none; young metamyelocytes, none; older metamyelocytes or "staff" cells, 0-10 percent; adult polymorphonuclear neutrophils or segmenters, 60-70 percent; lymphocytes, 20-30 per cent; monocytes, 1-6 per cent.

A shift to the left manifests itself as an increase in the percentage of "staff" cells with the appearance in the circulation of metamyelocytes and possibly myelocytes. Eosinophils disappear, and the lymphocyte percentage becomes reduced. With recovery there is a progressive drop in the percentage of "staff" cells, and disappearance of myelocytes or metamyelocytes. The lymphocytes increase to above their normal percentage, and eosinophils reappear in the blood.

Although a single blood count may be of great value, progress of an infection can be followed best by a series of blood examinations which, to be more easily interpreted, may be represented graphically, in several ways. A graphic method which will show the percentage relationship between the mature and immature granulocytes, and the total count, may be carried out by plotting the time interval between counts along the abscissa, and the total count, percentage of immature forms, and of mature forms along the ordinate. As in health these relationships are constant, variations from the normal become strikingly evident.

An advantage of Schilling's method is that the mature and immature cells of the granulocyte series are considered as a part of the complete differential count, thus expressing quantitative relationships between the eosinophils, lymphocytes and neutrophils which experience has shown to be of clinical value. The interpretation of findings cannot be rigidly formulated. However, in general, it may be said that the percentage of immature cells rises in proportion to the severity of the infectious process, the change taking place somewhat in ad-

vance of other clinical manifestations. A slight shift to the left (10-15 per cent), if the eosinophils are found in normal percentage, may be considered physiological. A more definite shift to the left (10-20 per cent), with disappearance of eosinophils and reduction in the percentage of lymphocytes, denotes the presence of an infection. A rapidly progressive shift to the left is unfavorable. Cases in which the percentage of immature forms reaches 50 per cent before death are unusual. Secondary shifting, when the count has previously been approaching normal, indicates the development of a complication.

The Schilling differential count requires little or no more time to perform than the ordinary count, and appears to offer information of more value than either the total leukocyte count or the percentage of neutrophils, and greatly amplifies the usual methods.

In a brief description of this kind, case reports and details of technic cannot be included. For more extensive discussion of the subject, reference may be made to the following articles.

No reference has been made to Arneth's later methods of classification of the lymphocytes and monocytes. Only Schilling's work in reference to the differential count is considered, his complete system for blood examinations, including the physical characteristics of whole blood, has been omitted.

BIBLIOGRAPHY

Piney, A. Recent Advances in Hematology. Blakeston, 1928.

Schilling, V. The Blood Picture and Its Clinical Significance. Translated by R. B. H. Gradwohl, M.D. Mosby, 1929.

Scooke and Ponder. Polynuclear Count. Lippincott, 1927.

Weiss, Arthur. Newer Hematological Aspects of the Neutrophils in Infections. Am. Jour. Med. Sc. 174:45-60, 1927.

Pons and Krumbhaar. J. Lab. & Clin. Med. 10:123, 1924-25.

Riznikoff, P. J. A. M. A. 93:963-967, (Sept. 28) 1929.

UNUSUAL TYPE OF OTITIS MEDIA AND MASTOIDITIS

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Although the pathology, diagnosis and treatment of the acute infectious processes in the middle ear and mastoid are generally well established, atypical cases not infrequently occur which are sometimes overlooked. Judging from the experience of some authors[1], text books and teachers have not sufficiently stressed these unusual forms.

Among these there is one type which has received considerable attention and, because the Streptococcus mucosus capsulatus was the organism first found associated with it, the name "Mucosus Mastoiditis" came into vogue. With the recognition of this entity, cases were found which, although conforming clinically to this type, did not show the Streptococcus mucosus on culture. It is my purpose in this report to stress the clinical recognition of such cases.

The following two cases were seen during the past year:

Case No. 1. J. B., male, aged 57, came to the Out-Patient Department of the University of Colorado School of Medicine, on Feb. 20, 1929, complaining of deafness, a feeling of fullness in the left ear, and pain behind the ear. This had been first noticed about seven weeks previously, following a cold. There had been no discharge from the ear at any time. Five years ago a right mastoidectomy had been performed, since which time the right ear has been practically deaf. On examination the left drum-membrane was found thickened, and tenderness could be elicited over the right mastoid tip. Nasal and naso-pharyngeal treatments were given at four to five day intervals until March 13, when the left external canal was felt to be tender and furunculosis diagnosed. Treatment for furunculosis continued until May 31, when I saw the patient for the first time. During this entire period no discharge from the left ear had ever been detected.

Examination at this time revealed considerable tenderness, edema, and fluctuation

over the left mastoid. The drum-membrane was thick and gray, the landmarks were obliterated, and on incising it the feeling was that of cutting through tough, fibrous, tissue. Following the incision there was practically no drainage. An x-ray interpreted by Dr. J. L. Harvey, revealed extensive breaking down of cells in the left mastoid. Operation was performed on June 8, a subperiosteal abscess was evacuated, and the mastoid cells were found broken down and filled with pus and granulations.

The patient made an uneventful recovery, and the hearing for the whispered voice which prior to operation had been reduced to 2 feet, was now back to normal at 20 feet. Culture report of pus from mastoid: "Gram positive hemolytic staphylococci and streptococci."

Case No. 2. Mrs. C. F., aged 56, was first seen on December 10, 1929, complaining of pain behind the left ear. There had been no previous ear, nose or throat trouble. A gynecological operation had been performed six months ago, and had given relief from previous symptoms. The present trouble began two months previously, accompanied by slight pain and a feeling of fullness in the left ear. For the past month she has been aware of increasing difficulty in hearing and a disturbing buzzing in the left ear. During the past seven weeks, she has been under the care of an otologist who has been treating her for "boils" in the left external canal, without relief from symptoms. At no time during this period was there any discharge from the middle ear.

Examination revealed a thickened, greyish tympanic membrane, whose landmarks were obliterated, but with no evidence of a perforation. The external canal was narrowed and covered with debris, but presenting no points of tenderness. Manipulation of the auricle did not increase pain. There was edema and tenderness over the left mastoid. Fluctuation could be elicited. Hearing for the accentuated whispered voice was reduced to six inches, hearing in the right ear was normal. X-ray report by Drs. Stephenson and Allen: "Left mastoid shows entire replacement of air throughout the cellular region and presents the x-ray signs of purulent mastoiditis."

Operation was performed at St. Joseph's Hospital on Dec. 12, 1929. A subperiosteal abscess was evacuated. A fistulous opening over the central portion of the cortex was encountered, leading into a central cavity containing pus, granulations, and a necrotic bone. When the antrum was reached there was an escape of thick pus. The patient made an uneventful recovery. Hearing for the whispered voice is now 20 feet. Culture report of mastoid pus. "Streptococcus."

Comment

The reason for the failure to recognize this condition sometimes rests on the fact that the signs and symptoms due to the tympanic infection are often insignificant and in many of these cases there may even be a complete absence of a history of aural discharge at any time, such as occurred in both cases here noted. Some of the citations in the literature under the caption of "Primary Mastoiditis" have probably been of this type.

In the course of a bacteriological study of the organisms associated with acute middle-ear and mastoid inflammations, Gohn, in 1909, while working in the Neumann Klinik[2], discovered that the Streptococcus mucosus capsulatus was frequently the causative agent in the type of case alluded to. Ruttin[3] and Neumann added the Diplococcus mucosus to this category and further stressed the clinical aspects of these cases. In the European clinics this condition is rather frequently recognized, and, although not unknown in his country, it probably has not received the attention it merits.

According to these authors, when the encapsulated cocci invade the middle ear spaces, the cells of the mastoid bear the brunt of the attack. In the tympanic cavity abundant granulations of a connective tissue consistency are formed, so that on cutting through the drum-membrane, the feeling imparted is that of "cutting through bacon." Possessing the biological peculiarities of slow growth and affinity for bone, these microbes insidiously invade and destroy the mastoid

cells. As a result, intracranial complications occur with an alarming frequency.

Clinically, the condition begins with a slight sticking pain in the ear, difficulty in hearing and tinnitus. The pain may hardly be noticed, and in a few hours to a few days may entirely subside. The drum-membrane may only show changes of a minor character: greyish, lacking luster and transparency, without bulging and most of the details absent. If rupture occurs either spontaneously or following incision there is only a slight amount of discharge. In some cases a history of discharge is entirely lacking. After a short time the so-called "Latent Stage" sets in.

In this stage the drum-membrane picture may show no further change, pain may scarcely be noticeable, but the patient begins to complain of an increasing deafness and of an "organ consciousness, as if he possessed only the half side of his head." This latent stage may last for weeks or months and often it is only the dramatic onset of the symptoms of an intracranial complication which directs the physician's attention to the ear.

Although frequently mentioned in association with the above clinical picture, a perusal of bacteriological literature reveals that a good deal of confusion exists as to the classification and identification of the Streptococcus mucosus[4]. Guggenheim and Ferris[5], writing as recently as April, 1930, state that type III Pneumococcus has commonly been accepted as identical with Streptococcus mucosus, and then proceed to quote Avery of the Rockefeller Institute who regards the latter as one of the strains of hemolytic streptococci. Furthermore, attempts to sift out the various types of streptococci has led to different classifications. Some laboratories, in the course of routine examination, only attempt to differentiate the hemolytic from the non-hemolytic streptococci, unless specially requested to carry out the identification to more specific strains. Holman's classification[6], followed by Dr. Ivan C. Hall, Professor of Bacteriology in the University of Colorado School of Medicine, recognizes 16 types of streptococci and does not appear to include the Streptococcus mucosus.

In view of this lack of agreement, Brunner[7] is of the opinion that the bacteriological findings should not receive the chief emphasis in the type of case alluded to in this report. He is authority for the statement that the association of this organism with the above clinical syndrome is no longer regarded as essential. The term "Mucosus Otitis," however, is still being retained to designate a distinct symptom-complex.

Unfortunately, having omitted the request, the specific strain of the streptococcus encountered in the two cases here reported was not identified. Although clinically simulating the Mucosus type of mastoiditis, the occurrence of the Streptococcus mucosus with the above is, therefore, only conjectural. It is felt, however, that it is well at this time to stress the clinical aspects of such cases.

Conclusions

1. Atypical forms of acute surgical mastoiditis frequently go by unrecognized. This is due to the fact that the subjective and objective symptoms in the middle ear may be of such minor importance that they fail to direct attention to the mastoid.

2. The Streptococcus mucosus capsulatus was first recognized as the etiological agent in many of these cases, but the classification and attributes of this organism apparently have not yet been definitely established.

3. Some now consider that other bacteria may produce a similar clinical syndrome.

4. These cases are dangerous because of their aptness to be associated with intracranial complications.

BIBLIOGRAPHY

[1]Phillips, Wendel C., and Friesner, Isadore: Report of Five Cases of Mastoiditis with Atypical Symptoms. J. A. M. A. 78: 1796, (June 10) 1922.

[2]Kettlekamp, F. O.: Mucosus Otitis, Laryngoscope: 34: 44, (Jan.) 1924.

[3]Ruttin, Erich: Akute Otitis, Medizinische Klinik, 1910, No. 1, p. 16.

[4]Kolle, W. und Wassermann, A.: Handbuch der Pathogenen Mikroorganismen 2 Auflage, Band 1V, p. 495.

[5]Guggenheim, Louis K., and Ferris, David P.: Dry Necrosis of the Mastoid, Archives of Otolaryngology: 11: 445, (April) 1930.

[6]Holman, W. H.: Classification of Streptococci, Jl. Medical Research, 34: 377, (July) 1916.

[7]Brunner, Hans: Personal Communication, 1929.

CONGENITAL RENAL ECTOPIA WITH CROSSED DYSTOPIA

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Renal ectopia is not rare, yet is of great interest to the urologist because it represents a congenital faulty position with an anomalous blood supply. Crossed dystopia of an ectopic kidney that does not fuse with its mate, when compared with the various other types of ectopia, is rare enough to invite presentation.

As a contrast between the ordinary pelvic kidney and one of crossed dystopia, it will be noticed that in the former the kidney is on the original side with the pelvis and calyces directed laterally, to be drained by an unusually short ureter entering the bladder in a normal position. (See Plate No. 1.) In crossed dystopia, the kidney is on the opposite side, the pelvis and calyces are shown to be indefinite as to the amount of rotation, and the ureteral length is but slightly decreased. (See Plate No. 2.) In each case the psoas muscle shadowy is indistinctly shown on the affected side, yet is well de-



Plate No. 1

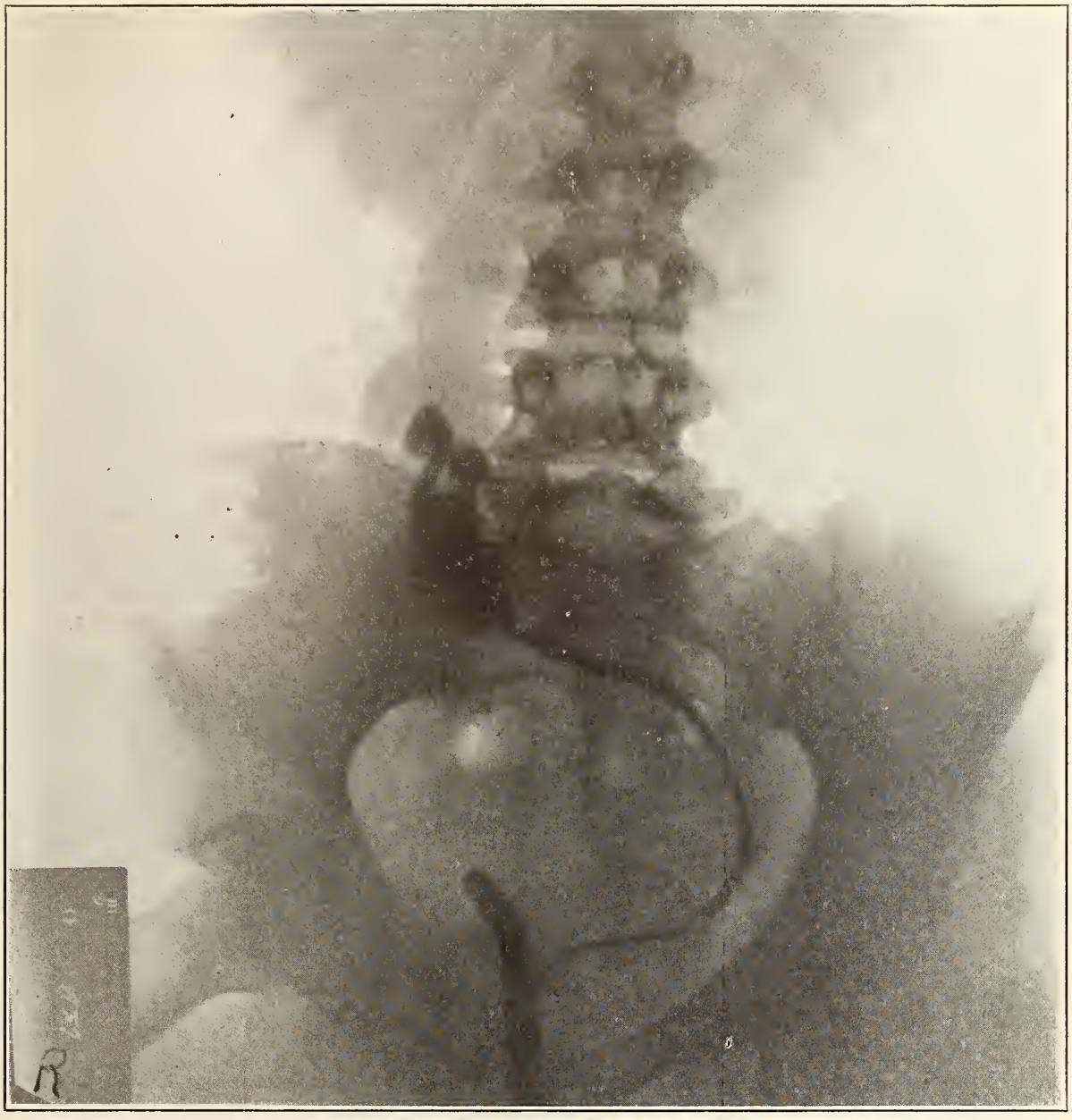


Plate No. 2

veloped on the side supporting the normal kidney.

The etiology in these two conditions is essentially the same in principle, being due to either a belated appearance of the ureteral bud or the failure of the embryonal renal arteries to atrophy during its cephalic ascension in the 7-25 m.m. embryo. There seems no plausible explanation why 70 per cent of the reported crossed dystopias are from the left side.

The particular case of crossed dystopia reported below was admitted to the Urological Department of the University of Colorado, the diagnosis having been made by two different urologists before entry.

Case Report

A white female, telephone operator, aged 22, complained of constant pain and soreness in the right lower quadrant and a frequency of urination.

Present illness: Throughout life, she has had a frequency of urination and a tenderness over the right lower abdomen. For the past five years she has had intermittent attacks of very severe pain in the right lower quadrant with accompanying hematuria and pyuria, requiring cystoscopic pelvic lavage and bladder treatments before the temperature and pain subsided. Between attacks, she was comfortable, except for tenderness to pressure. During the last year, the attacks have been more frequent, averaging one every six or eight weeks, but during the last three months she has been unable to work more than three

weeks, the remainder of the time being spent in bed or convalescing. The last cystoscopy was three weeks before admission.

Family history: Negative, except that one brother, aged 21, has nephritis.

Past history: Her general health and strength have been good. She had scarlet fever at the age of 7 and diphtheria at the age of 18, both without sequela. Honsillectomy was performed at the age of 20 and since then she has had no sore throats nor colds. She has suffered no other operations nor accidents. Catamenia began at the age of 14 and has remained normal enough thereafter to exclude pelvic disease.

Physical examination: On physical examination, the head, neck, and chest showed no pathology. The abdomen was flat and not rigid, but decidedly tender over the right lower quadrant, where one could easily palpate a fixed mass about the size of a kidney, the center of this mass being at McBurney's point. There were no other organs nor masses palpable. Vaginal examination showed no pathology other than a soft cervix and slightly retroverted uterus of normal size and mobility. The mass palpated in the right lower quadrant could not be definitely outlined during pelvic examination. The extremities were normal. Her temperature was normal.

Cystoscopic Examination: The urethra readily admitted a No. 24 cystoscope. The bladder wall was of normal contour and the mucosa of normal color. The trigone showed moderate injection, but both ureteral orifices were normal and in normal position readily admitting No. 6 catheters, the right passing a normal distance, the left meeting obstruction 4 cm. short of the normal. Specimens of urine collected shows no pus from either renal pelvis.

Differential Phenolsulphonephthalein, after intravenous injection, showed 20 per cent on the right and 12 per cent on the left during a fifteen-minute period.

Pyelo-uretrograms (Plates Nos. 2 and 3) showed a normal pelvis and ureter on the right with crossed dystopia and hydronephrosis of the left.



Plate No. 3

The left kidney pelvis retained sodium iodide for twenty minutes after injection.

Laboratory examination showed urine—light yellow; reaction, neutral; Sp. G. 1.020; albumin, 0; sugar, 0; acetone, 0; indican, 0; pus cells, 0; red cells, 0; epithelial cells, 0; crystals, 0.

White count—7,500 per cu. mm.

Blood Wassermann—Negative.

Blood Chemistry: Non-protein Nitrogen—21 mgs. per 100 c.c. of blood.

Operation: March 28, 1930. After opening the abdomen through a right rectus incision with the patient in Trendelenburg's position, the mass was palpated just below and medial to the cecum. An incision through the posterior parietal peritoneum was made directly over this mass and parallel to the common iliac artery. The kidney was found to be firmly fixed, round in shape, and normal in size, lying with its pelvis directed laterally, its posterior surface concave and conforming to the bony contour with an irregular convexity anteriorly. It was surrounded by only a thin layer of fat which was not adherent to the capsule. The arterial supply consisted of six short branches from the common iliac, each entering the kidney substance at a near point, only two being in the proximity of the hilum. A seventh artery came from the abdominal aorta, entering at the extreme tip of the upper pole. The venous supply consisted of a network of dilated veins which, after emerging from the hilum, passed over the convex ventral surface to enter the vena cava just above its bifurcation. Although the large renal pelvis pointed laterally, the ureter curved beneath the posterior surface of the lower pole, giving a rather abrupt angulation at its juncture with the pelvis. The ureter from the right kidney was found to pass posteriorly and lateral to the pelvis of the ectopic kidney. The blood vessels were ligated, the ureter was ligated and carbolized, and the peritoneum sutured. After removing the appendix in the usual fashion, the abdomen was closed.

Pathological report: The specimen measured 9x6x2.8 cm. There was no marked pathology other than an irregular outline, a very thin cortex, and a large hydronephrotic pelvis with obliterated or blunt calyces.

The postoperative convalescence was uneventful and, when last examined, May 1, 1930, the tenderness and pain were absent.

This condition, in its rarity, has been found more often in the female than in the male and is important since it often manifests itself during the later months of pregnancy, demanding that treatment be instituted at an inopportune time. Late recognition of this anomaly complicating pregnancy invariably endangers the patient's life as the descending foetus forcibly cuts off the renal circulation or tears the fragile anomalous arteries. The treatment, therefore, is entirely dependent upon a timely discovery.

INFLAMMATION OF THE PLACENTA AND MEMBRANES AND ITS CLINICAL SIGNIFICANCE

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Placentas are seldom given more than a gross examination after delivery, and that is for evidence of retention of portions of the membranes or cotyledons. Microscopic examination is seldom made as a routine, generally only in cases when there is some special indication for it. This report is based on the routine gross and microscopic examination of placentas from deliveries at the Colorado General Hospital over a period of about eighteen months. In these specimens acute inflammation was observed so frequently that a summary of the findings has been compiled.

Review of Literature

Published accounts of placental examinations have been relatively few, and some of these are restricted to the study of particular types. Slemons[1] reported 52 cases of infected placentas out of 3,000 consecutive deliveries at one hospital and 48 out of 2,700 at another. Siddall[2] found 48 cases with inflammation of the amnion and chorion out of 1,000 cases. In an earlier article Siddall[3] presented a study of inflammation of the umbilical cord, which he found to be of frequent occurrence, but to have no definite significance as to the presence of syphilis as some had claimed. Ikeda[4] considered that leucocytic infiltration of the placenta occurred in normal pregnancies, and especially with still births and after forceps deliveries. Laubscher[5] studied a few cases of premature rupture of the membranes showing involvement of the fetal part of the placenta secondary to ascending infection

of vaginal origin and acute endometritis. He and also Wohlwill and Bock[6] describe the transmission of infection of the membranes through the fetal circulation to the chorionic villi and thus to the intervillous spaces of the maternal circulation.

Method of Examination

Each placenta with its membranes and cord was weighed, measured, and described grossly, and then cut for microscopic sections. As a routine a section was taken from near the edge of the placenta, and also from other parts when indicated. For section of the membranes strips were rolled up before fixation so that a considerable extent became available for microscopic examination. In many cases two portions of membranes were taken, one a strip from along the margin of their point of rupture, and another at right angles to the edge, extending up to the placenta. A section of the cord was taken from within ten centimeters of the placental attachment.

Results of Placental Examinations

Acute inflammation was found to affect any of the three layers of the membranes, the amnion, chorion and decidua. In the placenta itself it extended to the chorionic trunk. In the cord it was in the walls of the blood vessels, and sometimes in Wharton's jelly. Following is a summary of the findings:

Number of placentas examined	325
Normal placentas and membranes	270
Acute inflammation	55
Sites of inflammation	
Placenta	3
Amnion, chorion, and decidua	15
Amnion and chorion	1
Chorion and decidua	27
Decidua	12
Syphilitic placentas	2

Clinical Significance of Inflammation of Placenta and Membranes

In order to determine whether these inflammatory changes have any clinical significance the clinical records of the mothers and infants have been grouped according to the presence or absence of inflammation, and compared with regard to mortality, evidence of septic infection, and other significant features.

Mortality: There was only one maternal death in the whole series, and this was in the non-inflammatory group and followed cesarian section for placenta previa.

The mortality among the infants was divided between the two groups as shown in the following table:

	Normal placentas	Inflammation of placentas, etc.
Full term living children	257	35
Premature living	4	5
Full term stillborn	1	5
Premature stillborn	5	10
Full term dying after birth	3	0
	270	55

This gives a fetal and infant mortality of 3.3 per cent in the normal group and of 27.2 per cent in those with inflammation. Analysis of the probable causes of death in the cases in the latter group shows two syphilitic stillbirths, and one each with intracranial hemorrhage, congenital pneumonia and craniotomy in an unsuccessful forceps delivery, The congenital pneumonia, aspiration type, as found at autopsy was ascribed to obstruction of the fetal circulation from the cord being tightly wound around the neck. Of the ten premature stillborn four were therapeutic abortions and three were spontaneous abortions. One of these was with a history of persistent bleeding, one was delivered with cord about the neck twice, and the third had a true knot in the cord.

It is evidently difficult to evaluate the relation of inflammation of the placenta or membranes to the mortality in this small series, since almost all the deaths are explainable from other causes, and since in some the inflammation followed obstetrical operative procedures.

Relation to syphilitic infection: Of the fifty-five cases with inflammation two maternal Wassermanns were four plus and three were questionable. None of these had syphilitic placentas on microscopic examination. Two other cases which did not have Wassermanns taken, had syphilitic placentas.

It does not appear that syphilis plays any part in the causation of these observed acute inflammatory reactions.

Forceps deliveries: There were six of such in the normal cases, and three in those showing inflammation, giving a proportionate frequency of more than twice as great in the latter group.

Duration of labor: A prolonged labor, especially in the second stage between rupture of the membranes and birth of the baby, might be expected to increase the percentage of inflammations, as it increases the period during which infection may spread from the vagina to the uterus. This is borne out by the fact that 12 (22 per cent) of the cases in the inflamation group had a second stage of labor exceeding two hours. In the normal group there were no instances of prolonged labor, or dry labor.

Evidence of maternal infection: None of the cases were septic in the ordinary sense, but it was thought that evidence of mild infection might be obtained by comparing the blood counts and temperatures in the two groups. Of the 55 showing inflammation blood counts were taken in only 24 cases, but all these showed white blood counts above 10,000, and in 19 of them the percentage of polymorphonuclears was above 80 per cent. In the group with normal placentas and membranes, the white blood cell count was above 10,000 in 140 out of 263, or slightly more than half.

In comparing the temperature reactions in the two groups and regarding 100.4° F. as the customary limit of normal temperature reaction following delivery, it was found that 10 of the 55 cases in the group showing inflammation exceeded this limit, while in those with normal placentas an abnormal elevation of temperature occurred in only 15 out of 263 cases, the remaining 7 having incomplete records.

Comment

It is surprising that such a high frequency of inflammatory changes in the placenta and membranes has not been accompanied by more serious effects on the mother and baby. This may be explained by the mildness of the infections, which may be due to organisms from the vagina to which the mother is comparatively resistant, and to the fact that most of the infected material, placenta and membranes, is removed from the uterus.

Upon examining the membranes it was considered that their margins near the rupture might be more liable to inflammation than portions further from the cervix. So microscopic sections were taken from the margin, and also extending away from this point to the placenta. In every case of inflammation near the margin, it was found to extend throughout the membranes up to the placenta, showing that there is little tendency to localize infection once it has involved the membranes.

Inflammation was most often found in the decidua and extension along this tissue is apparently the most probable route to the maternal circulation. The chorion and amnion were so often involved that this can be considered the path of extension to the amniotic cavity and the fetus. The leucocytes in the membranes apparently come from maternal and those in the cord from fetal sources

Summary

Routine examination of the placenta and membranes in 325 consecutive obstetrical cases showed evidence of acute inflammation affecting the placenta, membranes, and cord in 55 cases (16.9 per cent).

The incidence of inflammation was higher in cases with prolonged second stage of labor and in cases with complications requiring operative procedures.

There was no maternal mortality and no recognizable effect on the fetal and infant mortality.

A greater incidence of leucocytosis and fever in the cases with inflammation pointed to the existence of infection. In this series the infections were apparently mild and did not result in sepsis in any case.

REFERENCES

[1]Slemons: Infection of the Placenta, Cal. State J. of Med. 20:381, 1922.

[2]Siddall, R. A.: Inflammation of Amnion and Chorion. Am. J. Ob. and Gyn. 15:828, 1928.

[3]Siddal, R. S.: Significance of Inflammation of Umbilical cord. Am. J. Ob. and Gyn. 14:192, 1927.

[4]Ikeda, K. P. Ueber Aetiologie und Pathogenese der Leukocyteninfiltration in der menschlichen Placenta. Ziegl. Beitr. 78:16, 1927.

[5]Laubscher, W.: Ueber phlegmonöse Entzündung der Membrana chorii. Virch. Arch. 271:450, 1929.

[6]Wohlwill, F., and Bock, H. E.: Ueber Entgundüngen der Placenta und fetale Sepsis. Arch. f. Gyn. 135:271, 1929.

PRIMARY MALIGNANT DISEASE OF THE SPINAL COLUMN: CASE REPORT

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Tumor of the spine and its contents is a condition of great rarity, comprising 0.3 per cent of all tumors in 35,000 autopsies and the majority of these tumors were malignant. The greater proportion of malignant tumors of the spine are secondary, reaching it by metastasis, through the blood stream, most frequently carcinoma, secondary, to, in the order given, the breast, thyroid glands, uterus, stomach, gall bladder, and prostate gland. Primary malignant tumors are more infrequent than metastatic growths, occurring as fibrosarcoma, endothelioma, and myeloma. They originate most often in the vertebral body which soon becomes infiltrated by the new growth; destruction and collapse of the vertebral body follows.

Symptoms caused by spinal tumors vary according to the location, the structure of the tumor, and its size, and are largely dependent upon pressure either from impingement of the tumor mass upon the nerve roots or from collapse of the softened vertebral body with actual bone pressure upon the nerve structures.

The pain may be local or referred to the terminal ending of the spinal nerves, in the latter instance either unilateral or bilateral, more often the latter. Pressure upon the cord will ultimately cause blocking of nerve impulses with resulting paresis and eventual paralysis. Deformity of the spine may antedate these serious nervous system complications and is caused by the collapse of the spine at the point of disease from the inability of the softened vertebrae to support the superincumbent weight, the result being a prominence of one or more of the spinous processes, causing a kyphosis analagous to that of tuberculosis of the spine or as a late result of compression fracture of a vertebral body (Kümmel's Kyphosis). If one vertebra only is diseased the deformity is a knuckle like prominence; if several, the prominence is more rounded. The prognosis is unfavorable both because of the cachexia caused by the malignant infiltration and, especially, because of the damage to the structures of the nervous system. It is stated by Schlesinger that the average duration of life after the beginning of symptoms is nine and one-half months in carcinoma and eleven months in sarcoma.

The treatment is primarily by orthopedic methods to relieve the spine from weight bearing, by recumbency and fixation of the spine in a moderately hyper-extended position, in an effort to prevent nerve root and cord pressure.

Surgical removal of the growth has been attempted, but the results have not been beneficial, recurrence being rapid and excessive. Deep x-ray therapy has been used for the relief of the neuralgic pain.

Laminectomy and resection of the posterior nerve roots, Foerster's operation, may be effective in relieving the frightful neuralgic pain.

Differential Diagnosis

Tuberculosis of the spine. This is largely a disease of childhood, while malignancy is found almost always in adults. Symptoms are practically the same in adults during the early stage of both diseases, but pain is much more constant and severe as the disease progresses and much less easily influenced by protective treatment in malignancy than in tuberculosis.

X-ray differentiation may be helpful from the fact that an early change in tuberculosis is the thinning of the intervertebral cartilage of the diseased vertebra which does not occur in malignancy. Compression fracture of the spine, in which kyphosis exists, may lead to suspicion of malignancy but the history of severe trauma with a mildly painful course which is readily relieved by recumbency and spinal support should help to identify the condition.

Case Report

Mrs. S., fifty-one years of age, American, fairly well nourished, with a negative previous history with the exception of a pelvic operation seventeen years previously, began to complain, in the summer of 1929, of pain in the dorsal region of the back which, by September, had become radiating neuralgic pain around the chest to the front. The attending physician considered the condition a neuritis and sedatives were given. Pain became rapidly more severe and the patient entered hospital in December where an x-ray picture revealed an abnormal appearance of the body of the ninth dorsal vertebra and was interpreted to be an old compression fracture of the spine. The writer's examination made subsequently to this showed muscular rigidity in all movements of the spine, a small prominence at the level of the ninth dorsal spinous process. Pain was of a radiating character accompanied by severe muscle spasm. The tentative diagnosis was of an active tuberculosis spondylitis. A plaster body cast was applied with the patient prone, the spine slightly hyperextended. Pain was relieved for a few days, but returned and increased rapidly in severity and could be controlled only by large doses of opiates. After three weeks the cast was removed and the patient placed on a Bradford frame with the intention of giving deep x-ray therapy. A few days following this paraplegia rapidly developed with involvement of bladder and bowel, extreme paralytic distention of the abdomen, death occurring from respiratory paralysis.

Autopsy: Upon removal of the processes of the ninth dorsal vertebrae there is a protuberance on the right side projecting about one cm. The swelling is seen to terminate at the dura and does not penetrate the cord. The spinal cord, however, is considerably reduced in diameter at the point of the swelling. The tumor is continuous with the body of the vertebra and penetrates the latter. The heart and blood vessels are normal with the exception that there are placques on the aorta above the opening of the coronaries. The pleura is smooth; the left lung shows one calicified tubercle. The upper lobe is crepitant. The lower lobe is engorged with blood, and in parts emphysematous. In the right lung the upper and middle lobes are crepitant; there are healed tubercles in the upper lobe anteriorly. The lower lobe is filled with blood. In the right lobe of the liver is a white nodule, measuring three cm. in diameter. Nothing noteworthy found in stomach or intestines. The uterus and right adnexae are normal, the left adnexae have been removed.

Microscopic examination: Sections were made through the growth on the dura, through the nodule in the liver, and decalcified portions of the ninth dorsal vertebral body. Sections through all of these reveal masses of connective tissue cells growing atypically. The nuclei stains deeply and there are numerous mitotis figures. The thin stroma penetrates between the cell masses and also between the individual cells. Anatomic diagnosis: (1) healed tuberculosis of right and left lung; (2) extradural sarcoma affecting the vertebral column and showing metastasis in the liver.

Comment: A report of a case of primary sarcoma of the spine.

Malignant disease of the spine simulates tuberculosis of the spine in its early symptoms and signs, but the progress of the disease is much more rapid and it is not relieved by protective measures. While its occurrence is rare the possibility of this condition should be kept in mind.

Spring Conference, Dallas Southern Clinical Society

A total registration of 1,012 was reached in the Spring Conference of the Dallas Southern Clinical Society at the Baker Hotel, Dallas, April 14 to 18. The visitors came from ten southern states, ranging from New Mexico to Virginia. Six different subjects were presented in moving pictures, several with "talkies." Ten scientific exhibits were on display, and all available space for commercial exhibits was occupied.

Plans are already under way for the 1931 conference, which will probably be held in March.

Council on Pharmacy and Chemistry

The following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

Mead Johnson & Co.—Mead's Dextri-Maltose with Vitamin B.

Parke Davis & Co.—Ampoules of Pitocin 0.5 cc.

THE ACIDOSIS OF ETHER ANESTHESIA

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Investigators in this field are generally agreed that a decrease in the CO_2-combining power of the blood plasma occurs during ether anesthesia. This decrease is of considerable importance since it often amounts to one-third or more of the normal alkali reserve. Our understanding of the physiological significance of such a diminution in the reserve alkali of the blood has been greatly clarified by the important work of Van Slyke and his coworkers[1]. These investigators, in 1921, showed that an alkali deficit may be present in three different conditions of the acid-base balance of the blood.

(1) A primary alkali deficit may be accompanied by a compensating fall in the H_2CO_3. If this compensation is complete the normal ratio of $BHCO_3$ to H_2CO_3 is undisturbed and therefore the normal range of pH. i. e., 7.35-7.43, is maintained. Such a condition is not a "true acidosis" since there is no accompanying change in the reaction of the blood towards the acid side.

(2) A primary alkali deficit may be uncompensated by a coincident fall of H_2CO_3. The ratio of $BHCO_3$ to H_2CO_3 therefore falls, the pH of the blood drops below 7.35 and a "true acidosis" results. This condition is due to a failure of the defense mechanism to compensate for a loss of available alkali and occurs typically in the more severe stages of diabetes. In this disease, because of abnormal fat metabolism, large amounts of nonvolatile acids enter the blood stream with consequent depletion of the available plasma alkali and its excretion by the kidney in combination with diacetic acid and beta-hydroxybutyric acid.

(3) The alkali deficit may be secondary to a primary CO_2 deficit. This is seen following voluntary or involuntary over-ventilation of the lungs. An excessive loss of CO_2 tends to raise the ratio $BHCO_3$ to H_2CO_3. Under these circumstances the body is protected against a threatened alkalosis by conservation of H_2CO_3 through a diminuition in the respiration and by a reduction in the available plasma bicarbonate. Depending upon the efficiency of this defense mechanism, the alkali deficit may be accompanied by a normal pH or by an increase in pH above 7.43 towards the alkaline side. Such a hyperventilation with excessive loss of CO_2 occurs typically in ether anesthesia.

It is necessary, therefore, in order to obtain a true picture of the acid-base equilibrium during anesthesia to secure data on at least two of the variables concerned, namely, the pH and alkaline reserve of the plasma.

Henderson and Haggard[2], writing in 1918, contended that the alkali deficit seen during ether anesthesia was wholly dependent upon a primary loss of CO_2 from the blood due to the coincident over-ventilation of the lungs. If this were true there would result not an acidosis but a tendency to a high blood pH. Apparently these workers did not check their results by simultaneous determination of the blood pH.

Subsequent work has shown that the hyperventilation of ether anesthesia instead of causing the alkali deficit is probably itself caused by a primary "true acidosis." Various investigators, including Van Slyke, Austin and Cullen[3], Leake, Leake and Koehler[4], and others, have definitely shown that there is a marked lowering of the blood pH coincident with the fall in plasma bicarbonate. This occurs independently of changes in the respiratory rate. The alkali deficit of ether anesthesia is therefore uncompensated and a "true acidosis" obtains. A remarkable and significant feature of this fall in pH towards the acid side is the rapidity with which it develops. Cullen, Austin, Kornblum and Robinson[5] found that after two minutes of ether the pH fell from 7.43 to 7.17 and that after one minute of chloroform the pH fell from 7.27 to 7.11. This indicates a prompt breakdown of the protective mechanisms whose function it is to prevent fluctuations in blood pH. Fortunately the fall

is quickly checked and as the anesthesia proceeds some tendency to return towards normal may be witnessed.

In analyzing the phenomena presented by this primary uncompensated alkali deficit it is evident that the condition may be brought about through the operation of one or more of a number of factors. Thus it may be the result of (1) excretion of base into the urine, (2) entrance of non-volatile acids into the blood stream with consequent neutralization of plasma base, (3) transference of base from plasma to the tissues or to the red blood cells, (4) "chlorine shift" from the red cells to the plasma with consequent diminution of available plasma base and fall in pH, according to the equation $NaHCO_3 + HCl \longrightarrow NaCl + H_2CO_3$.

We may dismiss the first possibility very quickly with the observation that an oliguria is typically seen under ether and that as a consequence the excretion of base is often actually diminished.

The second possibility seems more promising and has been the subject of numerous investigations. It is well known that acetonuria is very common following ether anesthesia. Similarly a number of workers, including Leake, Leake and Koehler[4], Short[6], and others, have found an increase in the acetone bodies of the blood. This increase in acetone bodies, however, occurs slowly and cannot account for the extremely rapid development of the alkali deficit discussed above. Moreover, the acetone bodies are not ordinarily formed in sufficient quantity to account for more than a fraction of the total fall in alkali reserve. Although these acid bodies are undoubtedly a contributing factor in the causation of the acidosis, it is evident that we must search elsewhere for complete understanding of the condition.

Another acid substance which apparently enters the blood stream from the tissues under the influence of ether is phosphoric acid. Stehle and Bourne[7], in 1924, found that following ether anesthesia there is an increase in liver phosphorus with a coincident decrease in muscle phosphorus. Also post-anesthesia with resumption of urine flow there is an increased excretion of phosphates. These workers suggest that anesthesia causes a transference of phosphoric acid unaccompanied by base from the tissues to the blood. A reaction with plasma base follows, according to these workers, which results in depletion of the alkali reserve. Owing to diminished kidney function these alkali phosphates are deposited in the liver. With resumption of kidney activity the phosphates are excreted. This would, of course, result in an increase of the inorganic phosphates of the blood during the anesthetic. Not all workers have been able to demonstrate such a rise in blood inorganic phosphates, i. e., Bolliger[8], 1926, but other workers, Mackay[9], 1929, believe that an increase occurs. This rise, however, occurs much too slowly to account for the rapid changes in the acid-base balance which are induced by ether. Another possibility which must be considered is the entrance into the blood of hitherto unidentified non-volatile acids.

The third possibility which we have to consider is the transference of base from plasma to the red blood cells or to the tissues. Gürber[10], 1895, from a study of the ash of the serum determined that no sodium or potassium diffuses from corpuscles to plasma. The cell membrane, however, is permeable to chlorine. Transference of plasma base from plasma to cells is, therefore, unlikely to occur, although depletion of plasma base may result from "chlorine shift." Transference of base to tissues remains a possibility, but to the writer's knowledge this has not been shown to take place. There is, on the other hand, some evidence to show that this does not take place[11].

Recent work by Mackay and Dyke[12], 1928, indicates that "chlorine shift" may account for a part of the alkali deficit. These workers have shown that during anesthesia the chloride content of the whole blood remains constant while that of the plasma rises. There is, therefore, a shift of chlorine from cells to plasma with consequent diminution of plasma base. Quantitative data are lacking which would permit an evaluation of the

importance of the role played by this mechanism.

Diabetes Mellitus and Anesthesia

As regards the relationship between Diabetus Mellitus and the acidosis of anesthesia, we have already discussed certain findings common to both conditions, namely, the alkali deficit, the fall in pH and the disturbance in fat metabolism, as evidenced by the increase in acetone bodies of the blood and urine. Certain other features of ether acidosis are also found in diabetes. Indeed the resemblance is so complete as to raise the question—Does the etherized patient become a temporary diabetic? It is probably not too much to say that the two conditions can scarcely be distinguished from each other on the basis of the chemical findings.

The most striking of the diabetic phenomena is the rise in blood sugar which always occurs. In the experience of the writer this increase may amount to 80 per cent or more within the first few minutes of anesthesia. This hyperglycemia is thought to be due to increased hepatic glycogenolysis, for it does not occur if the liver is excluded from the circulation. On the other hand, the mobilization of sugar is said to be due to the action of ether on the pancreas since it does not occur in completely depancreatized animals[13]. Apart from these evidences of disturbed fat and carbohydrate metabolism, there is further data which indicates a diminished utilization of sugar under ether[14]. There is abundant evidence, however, to show that the ability of insulin to stimulate the utilization of sugar and the deposition of glycogen in the liver is unimpaired by the presence of ether in the body fluids. Many observers have shown that if insulin be given preoperatively hyperglycemia and acetonuria are much diminished or entirely absent. From this it would appear that the hyperglycemia and diminished utilization of sugar are due to inhibition of the secretion of insulin by the pancreas. This cannot, however, be regarded as definitely proved.

Among the other features of ether acidosis which are common to diabetes are a rise in blood fat[15] and a rise in blood cholesterol[16]. These blood changes are also prevented by the simultaneous exhibition of insulin. Certain of the features of ether acidosis are, therefore, not only common to diabetes, but they are controlled by a common remedy, i. e., insulin.

From a consideration of the data presented above, it appears not improbable that two mechanisms are involved in the production of ether acidosis. The initial disturbance results in a rapidly developing depletion of the alkali reserve. The cause of this is not certain, but "chlorine shift" probably plays a part. The second disturbance develops more slowly and closely resembles diabetes. Both disturbances tend to produce a "true acidosis." Of these, the diabetic changes are probably the more important clinically, since they reflect a more profound metabolic injury. Recovery from this is relatively slow as shown by the frequent persistence of acetonuria for some days post-anesthetic. Occasionally this temporary diabetes, if we may call it such, seems to get progressively worse in the post-anesthetic period. In the opinion of the writer, such cases when not due to starvation should be regarded as suffering from an inability to utilize sugar and should be treated accordingly.

If the views expressed above are correct, then certain deductions of clinical importance may be made. Ether is clearly contraindicated in diabetics. Clinical experience, however, has shown that these patients may be safely given ether after thorough preparation by means of diet and insulin. The routine exhibition of alkalies preoperatively is undoubtedly useful but does not strike at the heart of the metabolic disturbance, namely, the inability to utilize carbohydrate. Insulin and glucose would appear to be more logical. Patients suffering severe post-anesthetic acidosis are best treated by means of insulin and sugar in addition to the usual alkalis.

Little mention has been made in the course of this paper of the acidosis produced by anesthetics other than ether. In general, it may be said that chloroform acidosis resembles that of ether. Nitrous oxide and ethylene cause relatively much less metabolic

injury. Such acidosis as they produce is to a great extent dependent upon the coincident anoxemia.

REFERENCES

[1]Van Slyke, D. D.: J. Biol. Chem. 48: 153 (1921).

[2]Henderson, Y., and Haggard, H. W.: J. Biol Chem. 33: 345, 1918.

[3]Van Slyke, D. D., Austin, J. H., and Cullen, G. E.: J. Biol. Chem. 53: 277, 1922.

[4]Leake, C. D., Leake, E. W., and Koehler, A. E.: J. Biol. Chem. 56: 319, 1923.

[5]Cullen, G. E., Austin, J. H., Kornblum, K., and Robinson, H. W.: J. Biol. Chem. 56: 625, 1923.

[6]Short, J. J.: J. Biol. Chem. 41: 503, 1920.

[7]Stehle, R. L., and Bourne, W.: J. Biol. Chem. 60: 17, 1924.

[8]Bolliger, A. J.: J. Biol. Chem. 69: 721, 1926.

[9]Mackay, R. L.: Brit. J. Anaes, 7: 23, 1929.

[10]Gürber: Maly's Jahresb. 25: 165, 1895.

[11]Katz, L. N., and Banus, M. G.: Am. J. Physiol. 81: 628, 1927.

[12]Mackay, R. L., and Dyke, S. C.: Brit. J. Anaes. 6: 61, 1928.

[13]Ross, E. L., and Davis, L. H.: Am. J. Physiol. 53: 391, 1920.

[14]Burge, W. E., and Verda, D. J.: J. P. E. T. 34: 300, 1928.

[15]Bloor, W. R.: J. Biol. Chem. 19: 1, 1914.

[16]Mahler, A.: J. Biol. Chem. 69: 653, 1926.

PYONEPHROSIS HYDROURETER WITH SYMPTOMS OF PURPURA HEMORRHAGICA

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Report of Case

This case was exceedingly interesting from the standpoint of genito-urinary findings. The case came originally to the Medical Service of Colorado General Hospital to be treated for symptomatic purpura. The patient, a girl of eleven years, was handled by the medical staff for two weeks. The Genito-Urinary Department was then asked to investigate the urinary tract. The findings after the investigation showed conditions which we will report later.

The patient was admitted to the hospital with the chief complaints of blood in the urine, sores in the mouth and purpuric spots on the body. The pain on urination was terminal; urination was quite frequent with burning sensation. The diagnosis of symptomatic purpura was made, based mostly upon the blood platelets and bleeding and coagulation time were within normal limits. A search was made for focal infection. X-ray plates showed pansinustis, which was thought not to be the real cause of trouble.

The temperature ranged from 98.7 to 102 degrees, with an average of about 99.8 by rectum. The rises in temperature and pulse later did not coincide with the recurrent hemorrhage, but seemed to be due to therapeutic measures. The pulse range was 70 to 156. Occasionally there was mild epistaxis, easily controlled.

Urinalysis: S. G. 1.007-1.002.
Albumin 2-4.
Pus cells 3-4.
Casts 1-2.
Red cells 2-4.

Blood examination during this treatment showed:

Blood: Hb. 50 to 68.
R. B. C. 3,000,000 to 4,640,000.
W. B. C. 8,000 to 15,000.
Polymorphs 62 to 77.
Small Lymphs 23 to 36.
Blood Platelets 300,000 to 470,000.
Coagulation time 4½ to 5.
Bleeding time 3 to 3½.
Blood Group IV.
Wassermann Negative.

Bacteriology Report of the blood; sterile after 48 hours.
Tonsils showed Hemolytic Streptococci and Gram Negative Diplococci.

Blood Chemistry: Non-Protein Nitrogen 53.
Urea Nitrogen 34.
Creatinine 2.

Symptoms began a few days before entering hospital with lumbar pain, headache, practically no fever, also hematuria.

The family history is negative.

Personal history negative.

The patient was referred two weeks after entering hospital to the Genito-Urinary Service on Nov. 14, 1929.

General appearance of the patient when received in the Genito-Urinary Department

Pharynx: Tonsils enlarged.
Neck: Cervical adenopathy in anterior triangle of neck.
Heart: Tones normal.
Blood P.: 110/80.
Lungs: Normal.
Abdomen: Symmetrical. Purpura spots noted over abdomen in irregular arrangement (look like freckles). Tenderness over urinary bladder.
Extremities: Purpura spots on all extremities.
Reflexes: Normal.

Diagnosis, as given by the doctors, was the following:

Diagnosis: Hemorrhagic Purpura.
Symptomatic Purpura.

Hemorrhagic Nephritis.

Cystoscopic Examination: Nov. 14, 1929

The urethra was dilated under local anesthetic until cystoscope F. No. 26 was passed easily. There were eight ounces residual dark, foul smelling urine. The bladder was irrigated several times with boric solution before the bladder wall could be made out. No stones or tumors were seen in the bladder. The bladder wall was thickened, trabeculated and studded with varicosities, from which blood was oozing. The varicosities resembled bunches of angle worms in appearance. Both ureteric orifices appeared normal, the catheter passing easily through the orifice on each side. The urine collected from each side was bloody and the blood not due to traumatism and was sent to the laboratory for culture and examination of the sediment, which contained blood pus cells and bacteria. The following report was received on a pyelogram and a cystogram:

Pyelogram: X-ray findings

The ureteral catheter passes up to the level of the lower border of the second lumbar vertebrae, then curves downward. Seldom iodide injection shows a greatly dilated left ureter over 1½ cm. in diameter. The pelvis of the kidney is not filled. Three minutes after removal of the catheter the film shows irregular densities in the region of the left kidney. The injection of three ounces of sodium iodide into the bladder shows an enormously dilated, tortuous right ureter with maximum diameter of 3 cm.

Diagnosis: Sodium iodide in the kidney shows enormously dilated pelvis and calyces. The shadow of the bladder is 7 cm. x 9 cm. The pyelogram shows an irregular left border with small areas of lessened density.

Bilateral hydronephrosis, hydroureter.

Cystogram

Injection of sodium iodide solution into the bladder fills both kidney pelvises and both ureters. The maximum diameter of the right ureter is 3 cm. and of the left 2.7 cm. Kidney pelvis and calyces—left, maximum 12 cm. x 7½ cm.; right 11 cm. x 5 cm.

Diagnosis: Hydronephrosis; Hydroureter.

On account of residual urine the bladder was emptied frequently and irrigated with boric solution.

Transfusions of blood were given. Hemostatic medicaments were also given but the child's condition did not improve. She died forty-two days after entering hospital on December 12, 1929.

Autopsy Findings

Anatomical Diagnosis:

(1) Acute pyonephrosis.
(2) Acute purulent ureteritis.
(3) Acute purulent cystitis.
(4) Slight edema of the lungs.
(5) Accidental involution of thymus.
(6) Multiple accessory spleens.

Bacteriological Report:

Heart blood—Sterile.
Pericardial fluid—Sterile.
Bile—Sterile.
Pus from left kidney—B. coli; from right B. coli. No hemolytic streptococci.

Summary

1. Urological lesions are found in children as frequently as in adults and should be sought after in doubtful cases.

2. Hematuria is an indication for an early and complete cystoscopic examination, including ureteral catheterization, x-ray examinations and cystograms.

3. Complete cystoscopic examination can be accomplished in children as well as in adults by the use of the proper size cystoscopes.

PUBLIC HEALTH NOTES

EDITOR J. W. AMESSE, M.D.

How wide the gap?*

While public health is the foundation of the happiness and prosperity of the people and its promotion is recognized as an important function of government, how wide is the gap between what is achieved and what might be realized, how inadequate is the understanding of the public concerning the means adapted to secure the best results, how small the attractions offered to those entering or who might desire to enter careers in public health through lack of suitable financial recompense, of security of tenure of office, of opportunities for promotion, of standards for eligibility based upon special training and experience, and of funds made available for the public promotion of health? Something of the lack of adjustment of the average man to rapidly changing social, economic and political conditions of our complicated modern civilization may be reflected in a certain temporary maladjustment between curative medicine and preventive medicine, which should stand in harmonious relations.

*Extract from the response of Dr. William H. Welch delivered on the occasion of his eightieth birthday celebration, April 8, 1930.

Social Statistics

Registration of social statistics, which includes statistics of both public health and social welfare, for a large group of cities in the United States will be taken over by the U. S. Children's Bureau on July 1, 1930. A bill appropriating the necessary funds of $30,000 annually has passed both houses of Congress.

In 1927 a project was started by the University of Chicago, assisted by the National Association of Community Chests, to begin the registration of health and social statistics in the United States. It was felt that these data were becoming more and more necessary in connection with the intelligent planning of community programs, and it was hoped that after a demonstration had been made the project might be taken over by the government. During the first year, 1927, twenty-nine cities participated. There were thirty cities enrolled in 1928, and forty cities are sending in their reports to the central office during the present year. That the findings have proved extremely valuable is demonstrated by the fact that the government is taking over the project in less than three years' time.

Denver was fortunate in being in the original registration area of twenty-nine cities. Cities were selected in which there was a central group that could be held responsible for the accurate assembling of data—in Denver, the Denver Community Chest.

The University of Chicago, where the central office is located, in the reports that it issues shows total volume and cost for each community and also works this out on a per capita basis so that comparisons may be made between cities. This office can make no special interpretation of the local figures, but through the Statistical Bureau of the University of Denver and its interpretation and analysis many facts regarding Denver activities will come to light that will be of great value.

Data compiled are from all agencies—both public or official agencies and private or voluntary agencies. Analysis of the figures will show not only total volume and cost but also the percent borne by the official agencies and that by the private agencies in the various fields.

During the present year in Denver sixty-nine different agencies representing eighteen different types of social work are participating in the study. For the first time, this year all Denver hospitals are sending in full and complete monthly reports. An arrangement has just been worked out between the Denver Community Chest and the Bureau of Statistical Research of the University of Denver whereby a much larger use can be made of Denver statistics for the information of Denver citizens and for more intelligent planning of all our social service and public health activities.

Even the crude totals, however, give much food for thought. For example, they show that Denver has the largest number of dependent children per capita of population of any city included in the study—60 per cent higher than the average for the entire group. A follow-up study is now being arranged by the local committee to try to determine why this is so and, if possible, to remedy the situation through intelligent planning.

The registration area will undoubtedly be extended as rapidly as possible to include more cities and also to include states. Departments of public welfare and well-equipped departments of health will be essential in making available for states the information that is asked for.

The step just taken by the government is an important recognition of the value of such information and should be a stimulus to all cities and states to see to it that their organization is in line to give the most active support to a project of such far-reaching importance.

The Program Number

Watch for the July number of Colorado Medicine. It will include the complete program for the Sixtieth Annual Session, to be held at Pueblo, Sept. 9, 10 and 11.

On May 22, the Committee on Scientific Work, the Committee on Arrangements, the Committee on Golf Tournament, President Senger, President-elect Kickland, and the executive secretary held a joint meeting at the Congress Hotel, Pueblo, to lay final plans.

Watch for the July number.

Secretarial Notes and Comment

Edited by Harvey T. Sethman, Executive Secretary

PRACTICE OF MEDICINE BY NURSES

The Colorado State Medical Society, as represented by the Committee on Public Policy, will not tolerate the practice of medicine by nurses, whether they be superintendents of otherwise legitimate sanitariums or not.

This policy was put into effect forcefully by the Committee on Public Policy early in May when the committee and the executive secretary appeared before the Colorado State Board of Health in support of a complaint registered by physicians of Montrose against a Montrose institution accused of illegal and unethical practice. The complaint sought revocation of the license entitling a registered nurse to operate the sanitarium.

The Board of Health extended every courtesy to the Society's committee. Developments at the hearing convinced the board of the wisdom of postponing final action until Sept. 1. Counsel for the accused nurse assured the board that before Sept. 1 the license of the sanitarium will be surrendered.

* * *

ARE DOCTORS TAX-DODGERS?

For many years members of the laity, from the highest official to the lowliest individual, have felt that at any time they could attack the medical profession with impunity, that such attacks either publicly or privately made were popular, and that they would bring forth no refutation.

The Committee on Public Policy, now holding weekly meetings in the Executive Office, has ruled that such attacks shall no longer go unanswered.

The following self-explanatory letter is the result of the latest of such attacks to come to the notice of the committee. Our letter was quoted at length by The Denver Post in its issue of Sunday, May 18, and The Rocky Mountain News of the same date published the essential sentences from it.

It is reproduced here in the hope that members of the Society will bring to the committee's attention any future attacks on the profession:

May 17, 1930.

Mr. Clem W. Collins,
Manager of Revenue,
Denver, Colorado.

Dear Mr. Collins:

The local newspapers quoted you on May 5, 1930, concerning Denver taxation problems, and among other statements quoted you as follows:

> "Doctors, lawyers, accountants, engineers, and other professional men are not paying an equitable tax if the basis be ability to pay."

Providing you were correctly quoted, we wish to call certain facts to your attention.

When your assessors enter a physician's office, they invoice every item. They miss nothing. Every fixture, every single instrument, every conceivable article less firmly attached than the paint on the wall is assessed at a high figure—each separately. This may or may not be true of assessments made against other professional offices. The assessments as made against the medical profession could not in any case be exceeded in the case of other professions. Medical books are assessed at a minimum of one dollar each in many instances coming to our attention; this despite the fact that all professional men and a majority of laymen know that a medical book five years old is entirely obsolete and worthless in this age of rapid scientific progress.

If this were not enough to make your generalized charge against the medical profession supremely ridiculous, you might be reminded of the countless thousands of dollars in professional service which the physicians give gratis to the City and County of Denver every month of every year. The city pays for everything it receives, except medical service for its hospitals and its poor. The city pays its lawyers, its accountants, its engineers—the other professional men you attack along with the doctors—but one hundred and forty leading Denver physicians give part of their time to the Denver General Hospital and the Steele Hospital for which they receive no remuneration, no thanks, just an occasional attack like your present outburst. Another two hundred physicians give their time to the Colorado General Hospital and its affiliated dispensaries to which the city sends the great majority of the indigent patients there treated.

The medical profession, not only of Denver but of the entire state of Colorado, deeply resents the continual jibes, open attacks, and veiled insinuations from officials who, like you, are closely connected with institutions to which the physicians give weary, thankless hours of service. The Committee on Public Policy of the Colorado State Medical Society therefore takes this opportunity to apprise you of the feeling of the profession in regard to public statements like yours of May 5.

Very truly yours,
COMMITTEE ON PUBLIC POLICY,
By HARVEY T. SETHMAN,
Executive Secretary.

COMMITTEE ON INDUSTRIAL COMMISSION FEES

Several months of individual work by members of the committee, co-ordinated by mail, was consummated May 9 and 10, 1930. The full membership of the committee, aided by Dr. Donald H. O'Rourke as representative of the oculists, met in the Executive Office the night of May 9 and drew up a final revision of the medical and surgical fee schedule for the State Industrial Commission.

This was presented in both written and verbal form to the commission the following day. Verbally our committee was given to understand that the Industrial Commission realizes the justice of the medical profession's demands, and that at least a major part of the demands will be granted in the near future.

For the information of the Society the following letter is reproduced. Previous correspondence with the Industrial Commission had paved the way for the May 10 conference, at which the profession's reasons for each increase were outlined in detail by President Senger.

The committee wishes to express its appreciation to the many members of the Society who assisted in the deliberations preparatory to submission of the fee schedule revision, and to the members and associates of the State Industrial Commission for their courtesy and their assurance of careful consideration to be given our proposals.

May 10, 1930.

State Industrial Commission,
State Office Building,
Denver, Colo.

Gentlemen:

As a committee authorized to represent the organized medical profession of Colorado, we wish to present the following proposed revision of the Medical and Surgical Fee Schedule under the Colorado Workmen's Compensation Law. The items are enumerated in the same general order as published in your Fee Schedule of July 1, 1928:

Schedule—	Present Fee	Proposed Fee
First visit to place of injury, etc.	$ 3.00	$ 5.00
Night	4.00	5.00
First office visit, including dressing	2.50	2.50
Subsequent visits, office or hospital, etc.	1.50	2.00
Subsequent home visits, etc.	2.00	3.00
Country mileage, one way, beyond city limits of incorporated towns	.60	1.00
Ass't to surgeon at major operation	10.00	15.00
Ass't to surgeon at minor operation	5.00	*
General anesthetic	5.00	
(Change to read as follows:)		
Anaesthetics for major operations:		
Ether and Local		15.00
Gas		15.00
Spinal and Sacral		25.00
Local Anesthetic	1.00	1.00
Fractures:		
Femur	$ 70.00	$150.00
Patella	25.00	50.00
Clavicle	25.00	50.00
Radius or Ulna	35.00	50.00
Radius and Ulna	50.00	100.00
Humerus	50.00	100.00
One Finger	15.00	15.00
Each Additional Finger	5.00	15.00
One Toe	10.00	**25.00
Each Additional Toe	3.00	†10.00
Metacarpals (single or multiple)	15.00	25.00 each
Tibia	50.00	75.00
Fibula	20.00	20.00
Tibia and Fibula	60.00	100.00
Ribs, one or more	10.00	‡25.00
Metatarsals (single or multiple	20.00	25.00 each
Dislocations:		
Hip	50.00	75.00
Wrist	15.00	25.00
Finger or Toe	5.00	5.00
Shoulder (new dislocation)	25.00	50.00
Elbow or Ankle	25.00	50.00
Knee	35.00	75.00
Amputations:		
Thigh, Leg, Ankle or Foot	65.00	100.00
Arm, Forearm, or Hand	50.00	100.00
Finger or Toe	20.00	35.00
Fingers or Toes (2 or more)	25.00	50.00
Arm Disarticulation at Shoulder	70.00	150.00
Hip Disarticulation	100.00	250.00

*Eliminate item.
**Great toe.
†Each other toe.
‡Uncomplicated.

Miscellaneous

Add to the schedule the following sentence:

All flat fees set forth for FRACTURES shall apply to closed reduction without operation. For open operation and reduction, 150 per cent of the flat fee shall be added.

All other paragraphs under "Miscellaneous" are satisfactory except the following, for which changes are recommended.

Hernia, radical operation and subsequent care, $50.00, $125.00.

Enucleation of eye and subsequent care, $50.00, $125.00 with implantation.

X-ray

The X-ray Schedule is generally satisfactory. We recommend the following changes:

Increase all $8.00 x-ray fees to $10.00.

The fee for x-ray of the spine should be more fully itemized, and should read as follows:

Lumbar Spine	$15.00
Dorsal Spine	15.00
Cervical Spine	15.00
Pelvis	15.00
Entire Spine	35.00

The present schedule includes two items, Eyeball, $15.00; and localization of foreign body in Eye, $15.00. The former should remain as at present. The latter should be changed as follows:

Localization of foreign body in Eye, including previous determination of the presence of a foreign body, $25.00.

The present Schedule allows $25.00 for x-ray of the stomach and intestines. This should be changed to read as follows:

Stomach and Intestines, including such preliminary plates as are necessary, $35.00.

Our committee is prepared to discuss this sched-

ule fully with your commission, and we trust you will give our recommendations your most careful consideration.

Very truly yours,
WILLIAM SENGER, M.D., Pueblo, Chairman;
HAROLD T. LOW, M.D., Pueblo;
J. CRUM EPLER, M.D., Pueblo;
WILLIAM H. HALLEY, M.D., Denver;
H. G. GARWOOD, M.D., Denver;
JOHN R. ESPEY, M.D., Trinidad;
HARVEY T. SETHMAN, Secretary;
Committee on Industrial Commission Fees.

BOARD OF TRUSTEES

The regular meeting of the Board of Trustees was called to order at 8 p. m., April 28, 1930, at Colorado Springs, Dr. John B. Crouch, first vice president, presiding; and Dr. W. A. Kickland, president-elect; Dr. F. B. Stephenson, secretary; Dr. L. W. Bortree, treasurer, and Mr. Harvey T. Sethman, executive secretary, present.

Arrangements made by the Las Animas County Medical Society for radio broadcasts of health talks prepared by the American Medical Association was approved and commended, and the plan was recommended to all constituent societies. The use of individual physicians' names in connection with the broadcasts was left to the decision of county societies.

A financial report for the first quarter of 1930, submitted by the executive secretary as recommended by certified public accountants, was received and approved.

Semi-annual reports were received from the following committees and approved: Committee on Mental Hygiene, Committee on Social Medicine, Committee on Necrology, Committee on Industrial Commission Fees, Committee on Public Policy, Committee on Periodic Health Examinations, Committee on Credentials, Committee on Milltary Affairs, Committee on Scientific Work, Committee on Cost of Medical Care, Committee on Medical Education, Committee on Medical Literature, Committee on Publication.

It was directed that regular membership certificates, suitably endorsed, be sent to all honorary and associate members.

Registration of the title of Colorado Medicine in the United States Patent Office was approved.

It was directed that the State Board of Medical Examiners be sent a letter of appreciation for the board's recent offer of co-operation, and that protest be registered with the State Board against the possible relicensing of a physician convicted of felony.

It was dlrected that secretaries of county societies who have been delinquent in their duties toward the State Society be censured by formal letter from the Trustees.

The executive secretary reported a paid membership to date of 1,045, within five of the total predicted for the year at the last annual session.

The executive secretary reported a successful inauguration of the newspaper health bulletin campaign, and that the Committee on Public Policy has begun holding weekly meetings to prepare the bulletins.

Correspondence from the American Medical Association relative to pending legislation in Congress was referred to the Committee on Public Policy.

It was directed that a letter explaining the requirement of admission to membership in the Society be sent a recently rejected applicant to one of the county societies.

Declsion relative to the executive secretary attending the American Medical Association annual meeting was deferred until the next meeting of the Trustees.

An increase in salary for the Scientific Editor of Colorado Medicine was authorized subject to approval of the Publication Committee.

The Trustees adjourned subject to call of the president.

MEDICAL SOCIETIES

This department of Colorado Medicine is set aside for reports of recent meetings, announcements of future meetings and accounts of other important activities of the county and district societies, composing the Colorado State Medical Society. Every meeting of every local society should be reported. If your society is not represented, see that your secretary reports the next one, or that some other member is appointed to the task. Other societies want to know what your society is doing.

* * *

Boulder County Medical Society

Dr. Frederick E. Becker, Denver, was the principal speaker before the Boulder County Medical Society at its May meeting, held May 8 at the Boulderado Hotel, Boulder. Dr. Becker delivered a paper on "Rocky Mountain Spotted Fever, with Special Reference to Those Cases Without Rash." The paper evoked a good discussion in which many members took part. The meeting was preceded by a dinner at the hotel.

MARGARET L. JOHNSON, Secretary.

* * *

Medical Society of the City and County of Denver

Four papers made up the program of the Society for its first May meeting, held in the Assembly Hall, May 6. The program included "Acute Adenitis in Children Treated by Tonsillectomy," by Dr. Harry L. Baum, with discussion by Dr.F. P. Gengenbach; "Considerations of General Anesthesia," by Dr. Edwin Faber; "Spinal Anesthesia," by Dr. Frost C. Buchtel; and "Amytal Sodium Anesthesia," by Dr. J. E. Struthers, with discussion by Dr. Clyde Cooper.

At the meeting May 20 the program included "Obesity," by Dr. J. N. Hall; "Some Problems in Connection with Pneumothorax in Pneumoperitoneum Therapy," by Dr. O. M. Gilbert of Boulder; and "Coronary Thrombosis," by Dr. C. T. Burnett.

No more regular meetings of the society are scheduled until the first Tuesday of September.

B. B. JAFFA, Program Committee.

* * *

Larimer County Medical Society

The Larimer County Medical Society met for dinner May 7, 1930, in the banquet room of the Armstrong Hotel.

Three papers were delivered at the meeting: "Mathematics of Diabetes," by Dr. C. H. Platz; "Diagnosis, Complications, and Treatment," by Dr. P. J. McHugh; and "Surgery in Diabetes," by Dr. Lowell Little. The discussion was led by Dr. Weiss and followed by Drs. Johns, Haughy, Hartshorn, Hardesty and Matlack, and was closed by Drs. Platz, McHugh and Little. A vote of thanks was given by the Society to the authors. Dr. E. I. Newsom followed with an interesting discussion of diabetes in sheep. The loss of sheep fed in corn fields is often as high as 10 per cent, he said, while loss of those fed in feed lots sometimes reaches 6 per cent.

At the business meeting which followed the scientific discussion, Drs. John Gasser and I. W. Haughy were elected to membership. A letter from the secretary of the State Auxiliary, asking that a Larimer county auxiliary be formed, was approved and a motion was passed asking that Mrs. W. A. Kickland be urged to assist in forming such an auxiliary.

It was announced that the next meeting will be held in Estes Park, June 4, the Society meeting jointly with the Larimer County Dental Society. The subject will be "Vincent's Angina."

The president was directed to appoint a member of the Society to assist this year in making pre-school examinations. Dr. W. A. Kickland outlined briefly plans already completed for the annual session of the State Society in Pueblo next September.

LOWELL LITTLE, Secretary.

* * *

Northeast Colorado Medical Society

Members of the Northeast Colorado Medical Society met Thursday evening, May 7, at dinner in the Graham Hotel, Sterling, and afterward adjourned to the city council room of the municipal building for the monthly scientific meeting. Drs. C. E. Tennant and W. B. Yegge of Denver were the guest speakers, discussing from the surgeon's and internist's view, respectively, the subject of "Post-Operative Pneumonia versus Atalectasis." The society deeply appreciated the effort of the Denver men in giving the papers.

E. P. HUMMEL, Secretary.

* * *

San Luis Valley Medical Society

Drs. George B. Packard Jr., Frank B. Stephenson and George Johnson of Denver were guest speakers at the May meeting of the San Luis Valley Medical Society, held May 24 in Alamosa.

Drs. Packard and Stephenson delivered an illustrated symposium on "Empyema in Children," Dr. Packard discussing the surgical feature, and Dr. Stephenson followed with slides illustrating the x-ray aspects. Dr. Johnson gave an instructive paper on "Bromide Intoxication."

The meeting was preceded by a dinner, and the following day members of the society entertained the Denver guests on a fishing trip.

THE AMERICAN ASSOCIATION FOR THE STUDY OF GOITER

Program, Annual Meeting, 1930

July 10 and 11, Seattle, Washington

July 12, Tacoma Washington, and Mount Rainier

E. R. Arn, Dayton, O., President. Address, "Auricular Fibrillation Associated With Hyperthyroidism."

Willard Batlett, Jr., St. Louis.

Leo P. Bell, Woodland, Calif., "Tumors of the Neck Simulating Goiter."

Addison G. Brenizer, Charlotte, N. C., "Hyperthyroidism and Hypothyroidism Following 7,500 Thyroidectomies."

Harold Brunn, San Francisco, "Why General Anesthesia Should Not Be Used in Thyroid Surgery.

Thomas O. Burger, San Diego, "Local Anesthesia With Adjuncts for Thyroidectomy."

Warren H. Cole, St. Louis, "Experimental Study on the Production of Hyperplasia of the Thyroid by Chemical Means."

J. Earle Else, Portland, Ore.

William Engelbach, Santa Barbara, Calif., "Simpler Diagnostic Methods of Endocrine Disorders."

Gordon S. Fahrni, Winnipeg, "Effects of Thyroidectomy Upon Pregnancy."

N. W. Gillette, Toledo, O., "Complications Following Thyroidectomy."

Allen Graham, Cleveland, "End Results of Malignant Goiter"

Samuel F. Haines, Rochester, Minn.

John S. Helms, Tampa, Florida, "The Incidence of Goiter in the Southeastern States and Its Possible Significance."

Lewis M. Hurxthal, Boston, "The Cardiovascular System in Goiter."

Arnold Jackson, Madison, Wis., "Diagnostic Clinic."

Thomas M. Joyce, Portland, Ore., "The Preparation of Thyroid Patients for Surgery."

E. Starr Judd, Rochester, Minn., "The Treatment of Peptic Ulcer and Gallbladder Disease Complicated by Hyperthyroidism."

Wm. J. Kerr, San Francisco, "Necrosis of the Heart and Liver in Thyrotoxicosis."

O. P. Kimball, Cleveland, "The Relation of Endemic Goiter to Mental Efficiency."

Le Roy Long, Oklahoma City, "Hyperthyroidism".

E. P. McCullagh, Cleveland, "The Relation of Carbohydrates to the Calcium and Phosphorus Metabolism in Tetany."

K. F. Meyer, San Francisco.

R. J. Mellzner, San Francisco, "Thyroiditis."

Henry F. Plummer, Rochester, Minn., "Thyroid Therapy and Diagnostic Clinic."

H. W. Riggs, Vancouver, B. C.

C. A. Roeder, Omaha, Neb., "The Third Type of Toxic Thyroidism."

Linden Seed, Chicago, "The Differential Diagnosis of Thyrotoxicosis and Neurosis."

J. R. E. Sievers, Butte, Mont., "Influences Bearing Upon End-Results in Goiter Treatment."

E. P. Sloan, Bloomington, Ill., "Anatomy of the Thyroid Region."

Martin B. Tinker, Ithaca, N. Y., "Thyroiditis."

Robert Ward, San Francisco, "Carcinoma of the Thyroid."

Clarence G. Toland, Los Angeles, and John M. Askey, Los Angeles, "Blood Pressure and Goiter —a Preoperative and Postoperative Study."

Ralph R. Wilson, Kansas City, "Effects of Thyroid Activity Upon the Female Organism."

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE AND HOSPITALS

Since the major function of this institution is the teaching of medical students, all possible effort is made, as is true in Class A medical schools, to acquaint the future physician with the various phases of the practice of medicine as he may encounter them in subsequent years.

Instruction which corresponds more closely with the usual office practice is provided by the Out-Patient Department. This department occupies a wing of its own, two stories high, separate from but closely connected to the adjoining administration unit, and in turn with other units of the medical school and hospitals.

Ambulatory cases come to the clinics of this department during the hours 8 to 9 a. m., every day but Sundays and national holidays. Patients coming for the first time are interviewed by the Social Service Department which ascertains the financial status of the individual, or the parents if a minor. A financial schedule based on earnings and dependents determines the eligibility of admission. A letter from a licensed physician which requests care for any person is accepted as prima facie evidence that the individual is entitled to such care. Approximately 10 per cent of those who come for the first time are refused admission and are referred back to their private physician, if they have had previous care. In every case where a physician has been in attendance a letter is sent to him to determine whether or not in his opinion the individual is entitled to care furnished by the clinics.

After admission a card and history folder is made out for each case, and these bear a serial number which will identify that individual and will enable the record of all subsequent care and treatment of this individual to be centralized within one jacket. A blood Wassermann test is run routinely on all new cases at this point.

It is now that the medical students and patients see each other. Members of the junior class under supervision of staff physicians obtain a history from the patient, and this determines the department to which he will be sent. Members of the senior class obtain the blood specimens, again under supervision.

Description of the various clinics in this article can only be superficial but an attempt will be made to give an idea of them. On the ground floor, beside the Social Service Department, is the medical clinic with separate rooms for men and women, with individual examining booths in each. Then comes general surgery with provisions for examination, some minor operations and surgical after care, and dressings. The gynecologic and obstetrical clinics are also on this floor. The latter clinic directs pre-natal care and arranges for delivery care as seems best. A pharmacy in charge of registered pharmacists, and the record room where all histories are kept complete this floor.

On the second floor is the eye clinic with refraction rooms to care for the many cases which come for correction of possible defective vision, also treatment rooms. Then the ear, nose and throat clinic in which several patients can be cared for at one time in the several well equipped booths.

A genito-urinary clinic cares for numerous cases of this character in close conjunction with the dermatology clinic. Between these clinics, the various venereal diseases are treated with the aid of the gynecology clinic, as required. Other skin lesions are also cared for in the dermatology clinic.

A busy pediatrics clinic cares for many babies and children brought to it for corrective measures and treatment. And a neurology clinic cares for that type of case often in unity with the psychiatric clinic of the Psychopathic Hospital. Orthopedic cases are cared for in an appropriate clinic which is equipped to apply corrective appliances and casts as required.

A laboratory performs the routine tests which may be requested by the various clinics, to aid diagnosis. Cultures and other bacteriologic measures are carried out and special laboratory procedures are arranged for with the appropriate department, usually in the medical school proper. An x-ray department is available to give any assistance possible, and its modern adequate equipment is ample to fill virtually any need, either diagnostic or therapeutic.

Cases are transferred from one clinic to another better suited to provide the necessary care, and consultations are asked as needed. In all this the senior medical students enter, usually in small groups of six, at all times under supervision of a member of the Out-Patient staff, a licensed physician.

Physicians with a private practice donate several hours a week that needy persons may obtain necessary medical care, and more particularly that the future physicians may learn by precept the art as well as the science of medicine.

Attached to the Psychopathic Hospital is a psychiatric clinic which cares for the mentally ill, but they often require the assistance of one or more of the various clinics just described, which is readily obtained.

A small but definite percent of the cases in the various clinics cannot be adequately treated in the Out-Patient Department; they require hospital care. Arrangements for this care, either in the hospitals of this institution or elsewhere, are made by the Social Service Department. Of this more will be given at a later date.

Questions are often asked by physicians, also the laity, regarding the expense of care in the out-patient clinics. It is a cardinal rule that no needy case is refused care, whatever that may be, and free of cost. Many individuals, however, are able to pay something, and they are charged the actual cost of glasses, special appliances, prescriptions and x-ray procedures.

Mention should also be made of the nursing care given by the student nurses in the various clinics under supervisor nurses, also the care given certain cases in their homes by the nurses from the Visiting Nurses' Association.

All these activities, altruistic in nature, further materially the teaching of students of medicine and students of nursing, that they may in turn take their places in various communities, adequately trained in their respective professions.

Dear Doctor:

You own me. You want me to prosper and grow. The surest way you can help me is to let my advertisers know that their message has reached you. Use my name when writing them.

Sincerely,
COLORADO MEDICINE.

Obituary

Dr. Harold Clifford Lane

Dr. Harold C. Lane did not have as wide an acquaintance among the Denver physicians as his qualities and attainments would have brought him had he not been handicapped in his activities by physical ailments. But a considerable number of us knew him more than casually and are able to realize that his passing means a substantial loss to medical science. We grieve as well over being deprived of a valued acquaintance whose fortitude we admired. His uniform friendliness of manner was an example of that fortitude.

Dr. Lane practiced in an intermittent sort of way in Denver, but his most valuable work was his home study with the microscope and chemicals. Being well read in medical and other sciences as well as in history and philosophy, his mind was definitely centered on the improvement of the human race, especially through the solution of biological problems. He contributed no small number of articles to medical journals and was the author of not a few short spicy comments on medical problems in Time and other periodcials.

Fortunately, Dr. Lane was financially able to travel and to seek such climates as were beneficial to his condition and also to pursue such hobbies and work upon such problems as interested him. Evidence of his ingenuity and ability was the discovery and patenting of a process for producing a synthetic rubber, which he was able to sell to one of the large rubber manufacturing companies for a substantial sum of money.

As one who knew him rather well, I would say that the underlying incentives of his activities were a desire to benefit humanity and a keen innate interest in chemistry, physics and pathology.

Dr. Lane was born in Sheldon, Iowa, July 30, 1888. He was graduated from the Chicago College of Medicine and Surgery in 1911, and took post graduate work in 1911 and 1912 at King's College Hospital, London, and later at Lejar's Clinic, Paris. He was licensed to practice in Colorado in 1917, and was a member of the Medical Society of the City and County of Denver, the Colorado State Medical Society, and a fellow of the American Medical Association continually from 1918 until his death, March 20, 1930, at Hollywood, Calif. His widow, his mother, a brother and a sister survive him. F. B. S.

WOMAN'S AUXILIARY

WHY A MEDICAL AUXILIARY?*

Mira Scott Frank

The question "What good can a medical auxiliary possibly accomplish" is constantly being asked by the laymen and very often by the wives of medical men.

First: If organized for no other purpose than to create social activities, great results may be accomplished. The doctor's wife has always been a power in American medicine. The object of one of the first auxiliaries which was organized in Dallas, Tex., in 1917, was to foster friendship and good-will among the wives and families of the medical profession. Since that time a national society has been organized, and under it many state and county societies. It is hoped that before many years every county in the country will be organized.

Second: It is the earnest and unselfish desire of the doctors of any community to promote hygiene, sanitation, and the good health of that community. The American Medical Association is trying to provide scientific and reliable medical and surgical service to the people. Humanity must be impressed with the importance of keeping well, and the doctors' wives are organized to preach this gospel of good health and the need of periodic health examinations. In 1928 many health talks were given by members of the Woman's Auxiliary to the Denver County Medical Society throughout the city at various woman's clubs and some of the public schools.

Third: One of our aims has been to help educate the people through the medium of a splendid magazine called "Hygeia" which is published by the American Medical Association in Chicago. There was a long-felt need for such a magazine which was planned to "reach the public on everyday medical problems and to fill that requirement of modern humanitarianism." The County Auxiliary has made gifts of copies of "Hygeia" to various charitable organizations at different times.

The local society was very helpful in bringing Colorado into the United States Birth Registration Area, and it stands ready at all times to assist in anything which may benefit public health.

In 1929 our County Auxiliary adopted an additional purpose which it is hoped will prove substantial and valuable. It was voted to raise, for philanthropic purposes, a modest sum of money each year as a beginning of a scholarship fund for medical students, and also for a smaller fund which is dispersed as the Society sees fit.

Service is the keynote of our work and we are ever hopeful that in years to come our services may be of increasing benefit to mankind.

*Address delivered before the annual dinner of the Woman's Auxiliary Denver, May 3, 1930.

The Woman's Auxiliary to the Medical Society of the City and County of Denver held its annual dinner dance and card party at the Wellshire Country Club, Saturday, May 3, with about one hundred and twenty persons attending. After the dinner short talks were given by Mrs. Lorenz W. Frank, Auxiliary President; Dr. William H. Halley, Medical Society President, and Dr. Maurice H. Rees, Dean of the University of Colorado School of Medicine and Hospitals.

The annual meeting of the Woman's Auxiliary to the Medical Society of the City and County of Denver was held at the Denver General Nurses' Home, Monday, May 19. This was the last meeting of the year and officers for 1930-1931 were elected. They are: President, Mrs. Louis V. Sams; first vice president, Mrs. Maurice H. Rees; second vice president, Mrs. T. R. Coffman; secretary, Mrs. Douglas W. Macomber; treasurer, Mrs. H. J. Corper; auditor, Mrs. John G. Ryan; parliamentarian, Mrs. J. N. Hall.

Following the business meeting a group of songs was given by Mrs. M. J. Krohn accompanied by Mrs. John Chase. Mrs. Herman B. Stein reviewed "The Green Pastures" by Mark Connelly, and Mrs. Krohn sang illustrative Negro spirituals. Mr. Harvey T. Sethman gave a short talk on the "Mission of Medical Auxiliaries."

WYOMING SECTION

President, C. W. Jeffrey, Rawlins — First Vice President, R. H. Sanders, Superior
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Medical Defense Committee: Earl Whedon, Sheridan Chester Harris, Basin F. A. Mills, Powell

EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT

YOU HAVE THE FLU!

Of course you have the flu, that is you may have it about once in ten to twenty years. But every time you have a common cold, tonsilitis, or sinus infection you do not have the flu.

Every disturbance in the gastro intestinal tract is called by some well-meaning doctors intestinal flu. Ye gods and little fishes! Can't we get away from such rotten diagnosis?

Flu, la grippe, Spanish fever, etc., are all epidemic and pandemic diseases and occur as such.

Today they cause an outbreak in New York and in forty-eight hours hundreds and thousands of cases occur. Then on to Philadelphia or Chicago where the same conditions take place. Then in a few more days Omaha and Denver are visited as the germs are carried westward and in a week or so San Francisco and Seattle and Los Angeles are attacked.

That is flu. But this thing of calling every cold, or case of follicular tonsilitis, flu, ought to stop.

Such rotten diagnoses are a disgrace to the medical profession. E. W.

FIGHTING THE WOOD TICK

The commendable efforts of the United States Public Health Service and the cooperation of the state of Montana and its State Board of Health, in the study of Rocky Mountain fever and its prevention are not recognized by the medical profession as they deserve.

The average citizen even in the western states knows little or almost nothing about this wonderful service to mankind.

The story of the discovery of this comparatively new disease and the sacrifice of human lives in the study of the disease and its cause is as interesting as that of typhoid fever or yellow fever or any of the other plagues causing human suffering and death.

The eastern physicians today know but little about Rocky Mountain spotted fever, and even in Colorado, Wyoming and Utah, there are mild cases not properly diagnosed.

That we, as western physicians, need further information and study is self-evident and that the importance of continual aid in this study by the United States Public Health Service is all important to the lives of our people. No pharmaceutical house has ever attempted to solve the problems presented and no other preventive vaccine has ever been produced by any of these wealthy serum companies and if the United States Health Service were to stop making this life-preserving serum no one could buy a protecting dose and our loved ones would fall the prey of the lowly tick.

Recently the United States Treasury Department through the Public Health Service and its hygienic laboratory has issued Bulletin No. 154 which should be in the library of every western physician. This very interesting volume can be purchased for 35 cents from the Superintendent of Documents, Washington, D. C.

It contains eleven scientific papers written by Dr. R. R. Spencer and R. R. Parker.

Of greatest interest at the present time is the paper entitled, "Infection by Other

Means Than Tick Bite?'"[1] That there is a real danger besides the bite of the tick has been proved by experiments using guinea pigs as subjects:

"One hundred guinea pigs were used in the tests. On fifty of these blood from infected spotted fever guinea pigs was used. On the remaining fifty guinea pigs infected tick tissue suspension was made up so that each cubic centimeter contained the virus equivalent of one tick and then diluted ten times. This dilution brings the blood and tick virus to equal strength. A single drop of the citrated blood virus was now placed in the conjunctival sack of the left eye of each of ten guinea pigs. Four other groups of ten pigs each were treated by placing one drop in the mouth, by placing it on the skin after removing the hair with the fingers, and finally by placing it on the shaved skin. The remaining fifty guinea pigs were treated in groups of ten each in the same manner with the exception that one drop of the diluted tick virus suspension was substituted for the undiluted blood virus.

It may be seen that in no instance did the blood virus infect the animals, although control animals injected subcutaneously with the same virus suspension developed the disease.

On the other hand, the tick virus suspension infected all ten of those receiving it on the shaved skin; seven of those receiving it on the epilated skin, five receiving it in the conjunctival sack; five receiving it on the normal skin and two receiving it in the buccal cavity."

The results in every-day experience are that there is little danger of human infection from human tick fever cases but that there is great danger in crushing by the hands, infected ticks, especially if they have fed on blood. It means that some of the cases we have seen who could give no history of a tick bite did get infected by pulling and squashing infected ticks from domestic animals.

In other words, a curry comb is much better than the human unprotected hand in the removal of ticks sticking to horses, cows, dogs, etc.

A great advance in our knowledge of spotted fever and its prevention will come from a complete test for immunity of a large number of people residing in certain badly infected localities and thus determining the number of immunes and the number of susceptibles. When we know this we can then save the vaccine for those who are not immune and thus save more lives and not waste it on people who do not need it.

This same thing applies to the use of toxin-antitoxin.

In other words, we need a simple test to find out who can and will have spotted fever if bitten by poisonous ticks.

That is a work for the United States Public Health Service to do.

Certain persons are immune, perhaps from the bites of unfed infected ticks or from the bites of infected ticks in the cold stages.

On the other hand, if these infected ticks are fed on warm-blooded animals or kept in a warm room for some time, they become very much more dangerous and spotted fever cases are much more severe and fatal.

This in our opinion explains why some people are bitten a great many times and never develop the disease of spotted fever and others with the first bite develop spotted fever and die.

All western members of the Senate and House of Representatives should use all their influence to continue the work of the U. S. Public Health Service, on this subject, for as yet there is no treatment discovered to cure a case of spotted fever. An antitoxin ought to be developed. Until that is discovered let the good work go on.

E. W.

NO PROGRAM IN THIS ISSUE

The secretary's office expected to print the program for the annual meeting of the Wyoming State Medical Society which is to be held July 14 and 15 at Sheridan, in this issue of Colorado Medicine, but owing to the delay in sending in the titles of some of the papers we are unable to do this.

Official programs will be printed and mailed in June and the July number of Colorado Medicine will also contain this program.

The outlook for a splendid meeting at Sheridan is very promising and the Sheridan County Medical Society has several committees at work. An invitation is hereby extended to the members of the Colorado, Utah, and Montana societies to meet with us in Sheridan, where, we assure you, you will be given a hearty welcome. E. W.

[1] Infection by other means than tick bites—R. R. Spencer, Surgeon, and R. R. Parker, Special Expert, U. S. Public Health Service.

The Pacific Northwest Medical Association

The Pacific Northwest Medical Association will meet for its eighth annual session after a recess of one year, on July 1, 2 and 3, in Butte, Mont. The plans for this meeting are rapidly advancing toward completion under the able management of the local committee in Butte, who are doing everything they can to make this meeting an outstanding success and to have all details of arrangements anticipated. This committee already has assurances of an unusually large attendance.

There will be morning, afternoon and two evening sessions, running from 8:30 to 12; 1:30 to 5, and from 7 to 8 in the evening. After the evening session of Tuesday, July 1, there will be a smoker which is arranged by the Butte committee and which will have features that will be novel.

The evening of Wednesday, July 2, will be given over to the usual banquet of the Pacific Northwest Medical Association. Dr. T. M. Gans, president of the Montana Medical Association, will be toastmaster. The speakers of the dinner will be Honorable J. Bruce Kremer, a speaker of national renown, who will speak on "Medicine from the Lawyer's Viewpoint," and Dr. T. M. Rivers, of the Rockefeller Institute, who will speak on "The Scientific Spirit."

After the sessions of the meeting there will be a Pacific Northwest Medical Association trip to the Yellowstone National Park, leaving Butte on any train the night of July 3, or July 4, attending the Livingston Rodeo July 4 and leaving Livingston at 3 o'clock on the afternoon of July 4, through Paradise Valley and Yankee Jim Canyon. This excursion should be well attended. For complete information regarding expenses of the trip through Yellowstone National Park and train service, address Dr. E. G. Balsam, Box 88, Billings, Mont., who is committeeman in charge of the Yellowstone trip.

Dues of $15.00 for attendance at this meeting are now payable to Dr. Frederick Epplen, 639 Stimson Building, Seattle, Wash. Arrangements have been made for the appointment of various committeemen in Montana who will also accept dues for membership for attendance at this meeting.

Hotel reservations can be made through Dr. Harold Schwartz, 58 West Quartz Street, Butte, Mont., or through the secretary and treasurer. For further information or details, address Dr. Frederick Epplen, 639 Stimson Building, Seattle.

Reduced railroad fares have been arranged on the identification plan. Send for your identification certificate to Dr. Frederick Epplen, Seattle.

The Yellowstone Valley Medical Conference

The annual medical and surgical clinics of the Midland Empire Medical Conference were held in Billings, May 5, and were largely attended by the doctors of southern Montana and northern Wyoming.

The Yellowstone Valley Medical Society put on the program and acted as hosts. The clinics at St. Vincent's Hospital began at 8 o'clock and continued until 11, and covered a large variety of surgical subjects.

The leading surgeons and specialists of Billings performed the operations and the arrangements were so nicely made that all visiting doctors had an opportunity to view at close hand the work done. A fracture clinic followed, conducted by Dr. L. W. Allard. Dr. J. H. Bridenbaugh then gave a fluoroscopic clinic combined with interesting x-ray display.

At 12:15, at the Deaconess Hospital, luncheon was served to the doctors after which the meeting adjourned to St. Vincent's Hospital where the following program was carried out:

Backache—L. W. Allard, M.D.

Discussion—J. H. Garberson, M.D., Miles City, Mont.; F. F. Attix, M.D., Lewistown, Mont.

Obstetrical film, Normal Delivery and Management of Posterior Presentation, J. I. Wernham, M.D.

Diagnosis and Treatment Common Head Colds Including Complications, R. V. Morledge, M.D.

Discussion—Earl Whedon, M.D., Sheridan, Wyo.; G. A. Lewis, M.D., Roundup, Mont.

Diagnosis and Management of Goiter—E. W. Thuerer, M.D.

Discussion—J. R. Sievers, M.D., Butte, Mont.

Use and Abuse of Physiotherapy—C. F. Watkins, M.D.

Discussion—L. S. Stevens, M.D., Billings, Mont.

At 6:30 p. m. a banquet was served at the Commercial Club, the visitors being guests of the Yellowstone Valley Medical Society.

Dr. J. D. Barrett acted as toastmaster and introduced Attorney W. J. Jameson, Jr., who spoke on "Some Medico-Legal Aspects of Medicine."

Dr. J. R. Sievers of Butte, Mont., spoke on the "Einstein Theory of Relativity."

Dr. E. M. Gans of Harlowton, president of the Montana State Medical Society, chose for his subject, "Some Economic Aspects of Medical Practice," and other lesser lights finished the evening.

WYOMING NEWS NOTES

NORTHWESTERN WYOMING MEDICAL ASSOCIATION—Dr. J. R. A. Whitlock is again getting about following the removal of a gangrenous appendix at the Whitlock Hospital at Powell. Dr. Chester Harris of Basin was called to perform the operation. Dr. H. H. Horsley and Mrs. Horsley have added extensive improvements to their home in Lovell. Dr. Louis Howe, of Cody, made a business trip to Denver recently. Dr. R. C. Trueblood, who has been the mayor of Cody for four consecutive terms, was defeated by one of the leading attorneys of that place in a recent hotly contested city election.

Dr. Herbert Harris, president Wyoming State Board of Medical Examiners, and Dr. W. H. Hassed, secretary of same board, were in Powell today and notified Dr. W. H. Graham that they were ready to start prosecution for practicing medicine without a license. As his Iowa license was secured on his diploma from Keokuk Medical School, and not from an examination given by the Iowa State Board, they could not legally grant him a license, and his application therefore had been denied, and his carrying on a practice therefore was certainly illegal. He agreed to stop practice and agreed to furnish the Board with a signed statement to that effect, if prosecution proceedings were waived.

CARBON COUNTY—The Carbon County Medical Society is now a reality. They had a very nice meeting at the Parco Hotel the evening of April 17, seven doctors being present and meeting was followed by lunch and refreshments.

Regular monthly meetings will be held. Plans are now under way for the registration of the Carbon County Memorial Hospital at Rawlins.

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EDITORIAL NOTES AND COMMENT

THE PUEBLO PROGRAM

The program for the sixtieth annual session of the Colorado State Medical Society will be found on page 264. We believe that careful study of this program will convince our readers that the sacrifices involved in attending the meeting at Pueblo will be less than the sacrifice involved in staying at home. Surgery and medicine are well represented by papers of practical interest to practical men. Preventive medicine and obstetrics have each some time, though less time than they deserve, allotted to the discussion of their problems. Visitors from without our borders will bring fresh and stimulating ideas to our conference. We are glad to note that this year we shall have an opportunity to ask them questions, and even to compare our own experience with theirs.

But the scientific sessions are by no means the whole of our annual meeting. The congregation of all the progressive members of our profession draws to itself others who nourish and are nourished by our activities. At Pueblo we shall find representatives of numerous industries whose output, improved both in design and in material from year to year, is ancillary to the efficient conduct of our own profession. They will be there to co-operate with us in the fullest measure for the good of the public whom we serve.

Above all we shall meet old friends and share with them our past adventures and our castles in the air. We shall make new friends and so establish for ourselves fortunes against which all the bears in Wall Street may rage and rage in vain.

METHODIST MORALITY*

Citizens of Denver and visitors to the city can hardly have failed to notice during the latter part of May a large banner decorating the Trinity Methodist Church. It advertised the lectures of "Professor" Paul C. Bragg, "America's Foremost Lecturer." Who is this distinguished gentleman? "He will teach you," so says the advertising literature, "how to banish all disease," but "not with medicines, not with surgery, not with vaccines and drugs." One who has so far superseded the methods of scientific medicine must surely have had a distinguished career. We learn little of this except that by his own admission he conducted at one time a fraudulent healing enterprise in southern California. What then has he discovered? Let the "professor" speak for himself: "There are two causes of all types of diseases—mucus and acid . . . Rheumatism is nothing but clinkers and smoke." He has the power to tell at a glance whether or not a person is suffering from venereal disease—and there are other miracles in which, presumably, the Methodists believe.

Is all this wisdom dispensed for nothing? Well, hardly! To begin with foods and literature are on sale and are warmly advertised. The literature includes "What everyone should know about sex." When literature of this kind is sold in a Denver theater, the theater is raided by the police. However, one can hardly expect the police to raid a Methodist Church. But there is

*See also "Health Lectures," page 267, this issue.

more profit to come. After the free lectures a second series is offered: a series of six or perhaps seven lectures for the modest fee of twenty-five dollars. And how are people induced to take this course? Not merely for the sake of knowledge. No, gentlemen of the State Medical Board (in case you happen to be listening in); the scores of people who pay for this second course are offered healing as well as health for their money. They are even invited to fill out a form for "special analysis" on which they answer such queries as: "What is your ailment? . . . How long standing? . . . What did the doctor call your disease? . . . What kinds of treatment have you taken." And mark well that these people have been positively assured that the professor can cure as well as diagnose disease. We quote his words again: "There is an increase in t. b. every year. It can only be cured by curing the twelve quarts of blood in your body. There were seventy-five t. b. patients in my class last year. Fifty-seven of them are entirely cured and have returned to their homes and businesses. I cured them on live foods and sunshine. I have never seen any one cured on milk and eggs and rest." When arrangements were made with "Professor" Bragg by Trinity Church was any attempt made to discover the nature of his entertainment?

Perhaps the pastor of Trinity Church will tell us, as another pastor once told us, that the renting of his church leaves him without any responsibility for what goes on inside. If so our readers will form their own judgment on the standards of morality which he maintains.

ERRATUM

A regrettable error occurred in the June issue, page 174 and page 175, transposed lines making difficult a reading of Dr. William Whitridge Williams' letter on behalf of the Colorado State Board of Medical Examiners. The last four lines of the second column on page 174 should be transposed to the end of the second column on page 175 to correct the error.

ORGASMAL CONTRACTION OF THE CERVIX

Does the female orgasm play any part in aiding insemination? While everyone admits that it cannot be essential to conception, since women who are entirely frigid often become pregnant, yet it is not infrequently suggested that during orgasm the uterine cervix actually aspirates spermatozoa from the vagina. Cooper[1] states that "it is known" that this occurs "in some mammals," though he does not consider it proved for human beings. Cotte[2] attributes the theory to Ferdy, treats it without too much respect, and insists that the important factor in insemination is the active movements of the spermatozoa themselves. Mr. Walton, of the Cambridge University School of Agriculture, has been able to find only one published experimental study—that of Heape in 1898 and in that no details of the experiment are supplied. In default of definite evidence from other sources, Mr. Walton's own experiments now published[3] should lead to a withdrawal of the contention that aspiration by the cervix occurs in any mammal. His method was simple: the injection of 2 c. c. of colored fluid into the vagina shortly before coitus. From one to five hours after coitus with one or more vigorous males the female was sacrificed and the genital tract laid open. Although in all cases the colored fluid was found in the vagina "and generally present in considerable abundance right up to the ora externa, only in one example had it penetrated as far as the cervical canal." The exception was a doe which had littered only two days previously.

[1]Cooper, James F.: Technique of Contraception, Day-Nichols, 1928, Page 38.

[2]Cotte, Gaston: Troubles Fonctionelles de l'Appareil. Cénital de la Femme. Paris: Masson et Cie, 1928, Page 252.

[3]Walton, Arthur: On the Function of the Rabbit Cervix during Coitus, J. Obst. and Gyn. of the Brit. Empire, 37-92 (Spring), 1930.

The June, 1930, issue of Colorado Medicine is out of print. Unwanted copies will be welcomed at 466 Metropolitan Bldg., Denver.

PRIMARY PNEUMOCOCCIC PERITONITIS IN CHILDHOOD*

EMANUEL FRIEDMAN, M.D.
DENVER

Primary pneumococcic peritonitis is an entity with which many practitioners are imperfectly acquainted, doubtless because of the meagre consideration it receives in standard reference and text books. This circumstance will serve as my apology for a more comprehensive review than would otherwise be indicated.

In this discussion I shall not consider primary peritonitis due to organisms other than the pneumococcus nor peritonitis manifestly secondary to other infectious processes, such as pneumonia, empyema, appendicitis, or otitis media.

In 1842 Duparque[1] described 5 cases in girls from five to twelve years, undoubtedly examples of the condition in question. Similar cases were reported by Rilliet and Barthez in 1861; and by 1863, 24 cases had been collected. In 1874, Baizeau encountered two instances with rupture through the abdominal wall.

However, the first undisputed case was reported by daBozzola, who in 1885 demonstrated the specific organism in connection therewith. In 1890 Sevestre performed the first successful operation on a child with primary pneumococcic peritonitis.

In 1903 Von Brunn collected 72 cases, 57 of which affected children. In 1906 Annand and Bowen's review comprised 91 cases under fifteen years. In 1922 McCartney and Frasier[2] published a critical study based upon 56 cases which they encountered exclusively in girls. Among other reports of recent date are those by Heiman,[1] Lipshutz and Lowenburg,[3] Montgomery,[4] Struthers,[5] and De Sanctis.[6]

Primary pneumococcic peritonitis is rarely seen except in childhood; and even at that time of life it is not common. Netter[1] in 47 cases of generalized peritonitis in infancy and childhood identified the pneumococcus but once. Out of 171 cases of peritonitis admitted to the New York Babies' Hospital from 1908 to 1921, only 9 were pneumococcic in origin. During a five-year period ending in 1921, of 125 children with generalized peritonitis treated at Mt. Sinai, 15 were ascribed to the pneumococcus. In the course of ten years 38 cases of peritonitis were observed at the New York Post-Graduate Hospital;[6] 8 were primary and only 4 of these were pneumococcic. At the Denver Children's Hospital during the past three years 11 cases of generalized peritonitis are recorded; 6 represented the primary type and in 4 of these the pneumococcus was the offender.

This condition represents 2 per cent of all abdominal emergencies in childhood in the estimate of McCartney and Fraser.

Thursfield[10] during his long association with the Great Ormond Street Hospital had not seen a single case. Greater familiarity will doubtless result in its more frequent recognition as is attested by the experience of McCartney and Fraser who recognized but 4 cases in 1902, 7 in 1911, and 15 in 1920.

The condition is most frequent between three and seven years, but instances of its occurrence in infants as young as five weeks are on record.[4]

McCartney and his coworker are emphatic in their contention that pneumococcic peritonitis occurs as a primary infection only in the female. In 56 of their cases, 12 were in boys, 44 in girls; the infection in the boys was uniformly secondary, whereas in 36 of the girls it represented a primary invasion. That it does occur in the male has been abundantly proven. Holt and Howland find one-third of their cases in boys. Montgomery,[5] in 1925, reported five instances of its occurrence in boys, and several French observers have noted it repeatedly in male infants as well as in adolescents.

The condition is said to be more common among the poor. Trauma may play a determining rôle. Such appeared to be the case in a male child seen by Drs. Wollenweber and Packard at the Denver Children's Hospital. Otitis media and upper respiratory infections are frequent precursors.

*Read before the Colorado State Medical Society, Greeley, Colo., Sept. 4, 1929.

Route of invasion

No phase of the subject has provoked so much speculation as that pertaining to the manner in which the pneumococcus reaches the peritoneum.

The hematogenous route was first advanced by Michaut[5] in 1901 and he is supported by Von Brunn and Rieschbieth.[2] The latter bases his belief on the constant presence of the pneumococcus in the blood of patients with this type of peritonitis. If this explanation is deemed adequate it is pertinent to ask why peritonitis is so exceedingly uncommon in pneumonia: Blake and Cecil in 1920 have cast serious doubt on the validity of this theory. Furthermore, McCartney[5] failed to induce peritonitis by flooding the blood stream with the pneumococcus. And admitting this to be the avenue of invasion, why the disparity in the incidence of the infection in the two sexes, queries McCartney. More than likely, as is suggested by Jensen,[5] the pneumococcus invades the blood stream only after the peritoneal cavity has been infected.

The gastro-intestinal route was mentioned by Stoos in 1902 because of the early appearance of symptoms referable to this tract. This theory is supported by a number of competent observers and receives apparent confirmation from Annand and Bowen who found the pneumococcus in the intestinal flora and additional support from Stoos who isolated the organism in the subperitoneal tissue. However the absence of post mortem lesions in the intestines militates decisively against its general acceptance.

The lymphatic route[4] has been advocated because of the frequent association of abdominal pain with upper respiratory infections. This view is held untenable in the light of anatomic relationships.

The genital tract[1] was advanced as the portal of entry by Brun in 1901 and later by Ashdowne and Lambert. McCartney and Fraser[5] are the most ardent protagonists of this theory. In a publication which appeared in 1922 they adduce as their strongest argument the fact that the entity occurs as a primary infection only in girls; and that in early operative cases the infection is limited to the pelvic peritoneum; and lastly, that the organism can be isolated from the vagina. These plausible arguments, notwithstanding, other avenues must be considered, because of the unquestionable proofs of its occurrence in the male.

Pathology

The pathologic findings are those common to peritonitis from any cause. Emphasis is directed on the greenish yellow, odorless character of the exudate with numerous fibrin flakes which frequently mat loops of intestines. The appendiceal serosa presents the same appearance as that covering the other viscera. The changes are most marked in the lower half of the abdomen. In benign infections, a tendency to localization is noted, with the formation of loculi. These accumulations are most frequent in the region of the navel and pelvis, and may occasionally rupture through these structures. The French[7] consider the encysted form as the more common.

Symptoms

The onset is usually abrupt with high fever, early and overwhelming prostration, abdominal pain, persistent vomiting, diarrhea and less often tenesmus with blood stained mucous stools. Rigidity is intermittent and frequently absent. The respirations are usually accelerated and accompanied with dyspnea and cyanosis. Delirium is common with, frequently, no remission. The facies present an anxious expression suggestive of a state of shock. In the unfavorable cases the symptoms show no abatement, and death supervenes in about five days.

Premonitory symptoms have frequently been observed, notably by DeSanctis and Lipshutz and Lowenburg. The latter found in 90 per cent of their patients a preceding upper respiratory infection. Others have witnessed pulmonary symptoms antedating the peritonitis by several weeks.

In the more benign type a general amelioration in the severity of all symptoms sets in in four or five days. However, for a period of two or three weeks the temperature remains elevated, or becomes intermittent, the abdominal pain fluctuates in intensity, and the abdomen becomes swollen and tumid.

Pain is diffuse, only moderately acute, and is but rarely absent. In five cases seen by Heiman[1] it was definitely limited to the right lower quadrant. Montgomery has noted absence of pain and Waugh[10] insists that freedom from pain characterizes the condition.

Vomiting sets in early, is persistent throughout the course, and is refractory to treatment.

Diarrhea is more common at the outset. Heiman encountered constipation in six cases and in DeSanctis' series, constipation prevailed.

Fever is high, continuous, and frequently ranges from 104 to 106° F.

The abdomen shows moderate distention, said to be more apparent below the umbilicus; tenderness is diffuse but not striking; rigidity, according to Lowenburg[5], appears early, is pronounced, and constitutes a characteristic finding. Heiman,[1] on the other hand, does not consider this an outstanding sign.

In favorable cases localization of the infection is discovered after several weeks; its most ushal site is the umbilius, where redness and protrusion become manifest, and eventually spontaneous rupture may occur.

The operative findings are those described under the heading of "pathology." A copious exudate may appear as early as eight hours after the onset.[10]

Laboratory findings

In Lowenburg's[3] series, leukocytosis varied from 26,000 to 43,000 with 89 to 97 per cent of neutrophiles. Occasionally[8] leukopenia is present. In Heiman's experience the white count was under 10,000 in four instances; in two above 30,000; and the highest reached was 36,000. Blood culture was positive in 40 per cent of Lowenburg's series.

Diagnosis

Montgomery[6] states that recognition of the diffuse form is rarely possible except at operation. E. B. Smith[10] does not find it difficult to establish a diagnosis. In suspected cases Lowenburg[3] and Heiman advise peritoneal puncture which they regard as a harmless procedure. The odorless, greenish, fibrin-containing exudate is said to be pathognomic, particularly when found conjointly with diarrhea. However, the sole criterion is the isolation of the pneumococcus from the exudate.

Differential diagnosis

Depending upon the course pursued, differentiation from lobar pneumonia with delayed physical signs, acute infectious gastroenteritis, meningitis, and especially, peritonitis secondary to a ruptured appendix, may have to be established. The abrupt onset, the excessively high fever, extreme prostration, delirium, intractable vomiting, the frequent presence of diarrhea, striking abdominal distention, dyspnea, absence of cough, negative neurological findings, and the high leukocyte count, will prove of material help in reaching a conclusion.

Prognosis

Pneumococcic peritonitis is associated with a frightfully high mortality, varying from 80 to 100 per cent. Not one of Beaven's[1] five cases recovered. Heiman succeeded in two out of fifteen cases. Rieschbieth's[2] series collected from the London hospitals shows 88.8 per cent mortality. DeSanctis series discloses 100 per cent mortality in the non-operated and 75 per cent in the operated. McCartney and Fraser's experience is more heartening. For twenty years prior to 1920 they noted a death rate of 68 per cent; earlier recognition was rewarded by a drop to 53 per cent; and with improved methods of treatment a further reduction to 42 per cent in 1921 was effected. Lipshutz and Lowenburg[3] find the outlook utterly hopeless. In their series all died whether operated upon or not. The abortive type and the more protracted benign infections offer a more hopeful outlook.

Treatment

Kahn and Bowen advocate opium, an abundance of fluids, and supportive measures, but no operative interference until localization has taken place. In agreement with this view we find among others Parkes Symes,[4] Lilienthal, Cameron,[10] E. B. Smith and Rieschbieth.

However, a preponderantly large number favor early surgical intervention, if for no better reason, than thereby any other surgi-

cal condition in the abdomen is not likely to be overlooked. Waugh claims never to have met with failure when operation was undertaken within thirty-six hours. Operative measures are advantageously supplemented with blood transfusion, appropriate stimulation, fluid administered under the skin and in the opinion of an occasional observer by pneumococcic serum.

REPORT OF CASES

Case No. 1: E. B., female, five years old; and reared in a poor environment was admitted to the surgical service of the Colorado State Hospital on February 12, 1927.

The history disclosed that she became suddenly ill the day before admission with nausea, high fever, and pain in the abdomen particularly in the region of the navel.

The family and previous histories were unobtainable.

Physical examination on admission disclosed a well developed, well nourished girl of stated age who appeared desperately ill, with marked clouding of the sensorium. Her face was pale, especially in the circumoral region. Respirations were very rapid. The arms were in a state of tonic spasm. The abdomen was moderately distended, markedly tender and rigid, especially in the region of the navel and right-lower quadrant. A slight vaginal discharge was present. No other abnormal findings were discovered. The temperature was 105.4 F., the pulse 160 and feeble. The white count was 26,200 with 92 per cent neutrophiles. The hemoglobin was 78 per cent. Blood Wassermann, spinal fluid, urine and x-ray of chest were negative.

A provisional diagnosis of surgical abdomen was made on admission. The internist suspected pneumonia, and the pediatrician suggested that pneumococcic peritonitis be considered as a diagnostic possibility.

Operation was agreed upon, and performed at 2 p. m. of the day of admission, by Dr. Leonard Freeman, through whose courtesy I am enabled to report this case. The intestines were markedly distended, and the peritoneum slightly dull; a moderate amount of sero-purulent fluid was found with shreds of fibrin adherent to loops of intestines. The appendix showed the same degree of involvement as the bowels. Because of marked distention, the pelvis could not be properly explored. The appendix was removed and drainage inserted. The patient's precarious condition required frequent and energetic stimulation. She developed several generalized tonic convulsions during the operation. She failed to rally, and died at 7:45 p. m.

A complete autopsy was performed under the direction of Drs. Johnson and Becker and I shall abstract from their protocols only the salient facts.

Both lungs showed pronounced congestion in the dependent portions. The intestines were moderately distended, with few adherent flocculi of fibrin. The cavity contained about 30 c. c. of turbid yellowish fluid, most of which was in the pelvis. Peritoneal adhesions were absent. Stringy masses of yellow fibrino-purulent exudate adhered to the fimbriated extremities of both tubes and to the ovaries. The serous surfaces of those structures and also of the uterus were reddened. Exudate of a similar character surrounded the gall-bladder. The vaginal mucosa and labia minora were reddened but showed no discharge.

The removed appendix on section showed evidence of acute exacerbation of chronic appendicitis. The mucosa of the tubes showed slight leukocytic infiltration and that of the uterus was normal.

The heart blood was sterile. A smear of the fluid made at the time of the operation disclosed the pneumococcus; and on post-morten examination the bacillus Welchii and pneumococcus.

Summary of Case No. 1: A female child five years of age is taken acutely ill with high fever and abdominal pain. Soon thereafter she lapses into a state of delirium and her condition becomes rapidly worse. Her white count is 26,200 with 92 per cent neutrophiles. The various preoperative diagnoses are surgical abdomen, pneumonia, and pneumococcic peritonitis. Operation twenty-four hours after onset discloses a diffuse pneumococcic peritonitis. Death supervenes six hours later. The fluid is turbid, yellow, and flaky, and most abundant in the pelvis. Infection of the tubes is disclosed. Blood culture is negative.

Case No. 2: C. F., female, four years old, of Italian parentage, was seen at the request of Dr. H. I. Laff on March 15, 1928, at 2 p. m.

The previous and family histories offered nothing noteworthy.

Present complaint: The patient became suddenly and violently sick without a discoverable cause at 6 a. m., March 12, 1928, with vomiting, high fever and prostration. Three hours later Dr. Laff found her profoundly ill, markedly dyspneic and cyanotic with a pulse rate of 160 and temperature 105 F., and with her abdomen strikingly distended. Her condition presented but little change during the course of the day. The following day and the day after she appeared slightly better, though still apathetic; vomiting had ceased, fever had dropped to 101-102 F.; the pulse rate continued high, distention had not abated; she complained of no abdominal pain except on palpation. Cough had not been present, nor any upper respiratory infection. The bowels moved five to ten times a day, this frequently doubtless increased by free catharsis insisted upon by the parents. The movements were small, liquid and contained no blood.

Examination on March 15 disclosed a normally developed and nourished female child was listless, and betrayed no interest whatever in her environment. The respirations were 50; the alae nasi dilated with inspiration, and expiration ended in a grunt. The nervous system was not implicated. Examination of the chest disclosed only diminution of breath sounds on the left side. The ears, nose and throat were uninvolved. The abdomen was markedly distended, moderately tense, diffusely but not exquisitely tender, and without rigidity. The pulse was 130 and weak, and the temperature 103.5 F.

Tonsilitis, meningitis and lobar pneumonia were readily excluded. Appendicitis was deemed improbable in the light of the violent onset, the high fever and the serious constitutional disturbance. Primary pneumococcic peritonitis was considered not unlikely.

The patient was transferred to the Children's Hospital where she was again seen at 6 p. m. The chest x-ray was negative, the white count 6,600 with 72 per cent polymorphonuclears. The surgical consultant rather reluctantly agreed that operative interference should be urged, fearing that typhoid might be the condition present. However, consent for operation was denied and the child was returned to its home.

On March 16 the patient's condition had become much worse over night and consent was readily secured for readmission to the hospital. She now vomited occasionally and the stools were frequent and loose. The white count was 5,800; 73 per cent polynuclears. She was operated at 7 p. m. by Dr. Geo. B. Packard who found about one and a half cupfuls of greenish-yellow thick pus with much thick fibrin. The entire peritoneal surface including that covering the appendix, was involved to an equal degree. The appendix was removed, and drainage insured. The post-operative course was exceedingly stormy. The patient became very restless, muttering delirium gave way to stupor; the respirations became more accelerated, noisy, and labored; the pulse more rapid and weak; pulmonary edema followed, and death took place at 5 p. m. of March 18.

A smear of the peritoneal exudate showed numerous Gram-positive diplococci which on culture proved to be the pneumococcus.

Permission for autopsy was denied.

Summary of case No. 2: A female child, four years old, is seized without prodromal symptoms with high fever, prostration dyspnea, cyanosis, vomiting, diarrhea, and marked abdominal distention. Pain and tenderness are not conspicuous; rigidity is absent. The sensorium is clouded. The white count is 5,800 and polynuclears 73 per cent. A tentative diagnosis of pneumococcic peritonitis is advanced three days after onset. Operation is advised but not permitted until twenty-four hours later: this shows a pneumococcic peritonitis. The exudate is purulent, abundant, thick, green, and odorless with much fibrin. Death supervenes ten hours after intervention with terminal bronchopneumonia.

Case No. 3: M. S., female, age twenty-one months, was admitted to the Children's Hospital on Dec. 7, 1928, with a diagnosis of pneumonia which was later changed to that of intestinal obstruction by a member of the resident staff.

The previous history is unimportant and irrelevant.

The family history disclosed the death of two children at an early age, due probably to intestinal obstruction.

Present complaint: The patient had been fretful for one week and displayed an afternoon fever lasting only one or two hours. Three days before entrance her condition became acutely worse; the temperature rose to 103 F. and a series of convulsions set in which did not recur. The fever remained elevated, the child had been crying almost constantly, and striking abdominal distention and unyielding obstipation developed. Her general condition became progressively worse and the evening before entrance her breathing became shallow, rapid and labored and vomiting set in; emesis had been very frequent and the vomitus deeply bile stained and later fecal in character.

Physical examination: The patient, upon admission, was found well nourished, normally developed, and exceedingly ill. Prostration was extreme. She lay with eyes closed in a semi-stuporous state. The eyes were sunken, the cheeks flushed, the legs drawn up, respiration was moderately accelerated with grunting expiration. Retching was almost incessant. The nervous system was normal. The throat appeared highly inflamed and inspection provoked the vomiting of a bile-stained odorless liquid. The ears and chest were normal. The abdomen showed extreme and uniform distention, was immobile and tender. The external genitalia were normal. The buttocks were badly excoriated. Digital exploration of the rectum showed no abnormality. The temperature was 103 F. and the pulse 150 and thready. The white count was 24,200 with 95 per cent neutrophiles. The hemoglobin was 70 per cent and there was a reduction of one million in the number of red cells.

The impression conveyed was that of a generalized peritonitis secondary to a ruptured appendix, or that of primary pneumococcic peritonitis. Because of the extreme prostration, surgical intervention was deemed inadvisable.

The x-ray disclosed a questionable beginning right basal bronchopneumonia and fluoroscopic inspection after a barium enema was suggestive of obstruction at the splenic flexure.

The surgical consultant counseled operation. This disclosed the peritoneal cavity filled with thick, greenish-yellow, odorless pus without any flakes, and adhesions in the splenic region. The appendix was uninvolved and the generative organs ap-

peared normal on palpation. The intestines were highly distended and no obstruction was encountered. The patient grew rapidly worse and died three hours after exploration.

Autopsy performed fifteen hours after death and embalming, yielded no additional information of importance. Consolidation of the left lower lobe and dense adhesions enveloping the spleen were found. Direct smear of the exudate revealed the pneumococcus. However inoculation of a suitable medium produced no growth.

Summary of case No. 3: A female child, twenty-one months of age, indisposed for several days, develops abdominal pain and distention, marked prostration, high fever and two and one-half days later intractable vomiting and dyspnea. The white count is 24,200 with 95 per cent polynuclears. A diagnosis of pneumonia is changed on admission to that of intestinal obstruction. General peritonitis secondary to ruptured appendix with a possibility of primary pneumococcic peritonitis is favored by the consulting pediatrician. Operation discloses idiopathic pneumococcic peritonitis with thick, greenish-yellow, odorless fluid with no flakes and limited fibrin deposit. The genitalia are apparently unaffected. Death ensues three days after the onset.

Summary

My experience with three cases of primary pneumococcic peritonitis may be summarized as follows:

All three patients were females, aged respectively five, four and one and three quarter years.

The onset was sudden in all three cases; one showed a premonitory indisposition. The outstanding symptoms were high fever, prostration and stupor. Vomiting was absent in one, appeared early and remained persistent in the second, and was a late but a most distressing manifestation in the youngest. Diarrhea was conspicuous in one, and constipation in one. Bloody stools were not encountered. Abdominal pain and tenderness, were present in all three, but only moderate in degree. Distention was found in all, but was pronounced in only one. Rigidity was detected in two; in the youngest the abdomen was immobile. All three were dyspneic and one cyanotic. Cough was not in evidence. The throat was found inflamed only in the youngest, and was doubtless due to incessant vomiting. Vaginal discharge, slight in degree, was present in one.

The white count and polynuclears were respectively: 26,200 and 92 per cent; 6,600 and 72 per cent; and 24,200 and 95 per cent. A blood culture performed in one patient proved negative.

The various preoperative diagnoses considered were: surgical abdomen in two of the cases; pneumonia in three; typhoid fever in one; intestinal obstruction in one; secondary peritonitis in one; and pneumococcic peritonitis in all three.

All three patients were operated, at thirty-six hours, four days and three days, respectively, after the onset. Operation revealed a variable amount of odorless fluid sero-purulent in one, and thick and greenish-yellow in two, with thick, fibrinous flakes in two. Adhesions were found in the youngest, coating the spleen. The peritoneal surface was moderately congested. The intestines were distended in all three. The genitalia were found involved in the oldest.

All three patients died.

Autopsy was permitted in two, disclosing in both cases and in addition to the above findings, pneumonic consolidation at the bases of the lungs.

Conclusions

A review of the literature on primary pneumococcic peritonitis coupled with an analysis of three personal cases warrant the following conclusions:

The infection may occur in early infancy, but is most frequent between three and seven years.

Its incidence is appreciably greater in the female.

Invasion of the peritoneum takes place most often by way of the genital tract. However, the respiratory and gastro-intestinal systems may also serve as portals of entry.

The dominant symptoms are an abrupt onset, with high fever, delirium, prostration and abdominal pain and distention.

The condition may simulate pneumonia, meningitis, ileo-colitis, and secondary peritonitis.

A presumptive diagnosis can in most instances be reached by those familiar with this clinical entity.

The affection is attended with a tremendously high mortality which can however be definitely reduced by early recognition.

Operation is the only mode of attack worthy of consideration.

BIBLIOGRAPHY

[1]Heiman, Henry: Pneumococcus Peritonitis in Infancy and Childhood. Arch. Ped., 38:677-684, 1921.

[2]McCartney, J. E., and Fraser, John: Pneumococcal Peritonitis. Br. Jl. Surg., A: 479: 1921-22.

[3]Lipshutz, Benj., and Lowenburg, Harry: Pneumococcic and Streptococcic Peritonitis: Report of 23 cases in Infancy and Childhood. J. A. M. A., 86: 99 (Jan. 9), 1926.

[4]Montgomery, A. H.: Primary Pneumococcus Peritonitis in Children. Surg. Gyn. & Obst., 41: 798-803, 1925.

[5]Struthers, R. R. Penumococcal Peritonitis. Can. Med. Assn., 14: 955-959, 1924.

[6]De Sanctis, A. G., and Nichols, R. A.: Primary Peritonitis in Children. Arch. Ped., 46: 17: (Jan.), 1929.

[7]Bernheim, G. M., et Rendu, A.: Forme abortive et forme a réchutes de la peritonite a pneumocoques chez l'enfant. Arch de Med. d'enf., 29:572, 1926.

[8]Abt's Pediatrics: Pneumococcic Peritonitis 3:516-520, 1927.

[9]Syms, Parker: Pneumococcus Peritonitis Annals Surgery, 67:263-272, 1918.

[10]Discussion on Pneumococcal Peritonitis., Proceed. Roy. Soc. Med., 18:51-63 (Pts. 1 & 2, Jan. 23), 1925.

DISCUSSION

Roy P. Forbes, Denver: In reviewing the literature on pneumococcic peritonitis one is impressed by the amazing lack of unanimity of various authors as regards mortality statistics, and treatment. Lipshutz and Lowenburg, American authors, state that their mortality was 100 per cent in 100 cases at Mt. Sinai Hospital. Other authors, especially English writers, report as low as 40-50 per cent mortality. It seems likely that the American series with 100 per cent mortality was in fact not primary, but secondary peritonitis, and the authors admit that all their cases had recently had a throat infection. It seems apparent from the literature that the benign or encysted type of pneumococcic peritonitis is relatively the more common in Europe and the diffuse, rapidly fatal type is seen commonly in this country. Dr. Friedman's series seems to substantiate this deduction. However, it is important that the physician keep in mind the fact that there is a distinct classification of the disease and that the prognosis and treatment must follow this classification. English authors, especially Cameron and Waugh, have pointed out a simple classification which seems quite valuable. It is based purely on the course of the disease. First, the stage of onset. This is the period of acute generalized or diffuse peritonitis. It lasts but a few days, but the patient is alarmingly ill these few days, and most of the mortality occurs at this time. It is in this stage that the physician must differentiate pneumococcus peritonitis from acute appendicitis, and from other acute forms of peritonitis. The higher fever, 102-105 degrees, the usually higher blood count, more than 20,000 in most cases, the generalized tenderness without a great deal of spasticity, and the mild diarrhea which is usually present on the first day, all serve to indicate pneumococcic peritonitis instead of appendicitis, but in the absence of some of these signs, exploratory operation would certainly be justified. At operation the presence of thin fluid without odor is suggestive of pneumococcus peritonitis, as compared with perforative peritonitis. Whether surgical interference is of value at this stage is still a debatable question, as Dr. Friedman has indicated.

The second stage with pneumococcal fever may last for two or three weeks. The fever remains high and the patient shows every evidence of profound toxemia, but the abdominal symptoms are almost absent. Waugh calls this the "silent stage," and points out that the pneumococcus outside of its normal habitat rarely causes much pain. Thus, pain is slight or absent in otitis, arthritis, pericarditis and peritonitis, due to the pneumococcus. Cameron saw three cases which had been diagnosed as typhoid fever in this second stage. The blood count and onset should rule out typhoid.

The third stage or encysted peritonitis follows the defervescence of the fever. A localized tumor (abscess) finally appears and often ruptures at the umbilicus. Tuberculous peritonitis is frequently wrongly diagnosed at this time or during the second stage, but Waugh has pointed out that in tuberculous peritonitis the patient has not been acutely ill, but the signs of peritonitis are quite evident, whereas in pneumococcus peritonitis the patient has been critically ill, but with very little evidence of peritonitis. The prognosis is excellent in this late stage, and rapid recovery follows evacuation of the pus, just as in empyema following pneumonia.

George B. Packard, Denver: I have very much enjoyed Dr. Friedman's thorough and comprehensive paper. He has so completely covered the subject both from the literature and from his own practical experience that there is little to discuss and really nothing to add. A few points, however, which have a surgical bearing in diagnosis and treatment I would like to emphasize.

My operative experience consists of four cases in the past two years. One other case I saw in consultation. Four of these proven by culture were girls, one with a doubtful culture was a boy. In all these five cases I was impressed by certain characteristics.

The onset was rather sudden, consisting of abdominal pain usually in the lower half but not localized. There was early high fever; usually 102 to 105 degrees. There was early toxemia; the patients looked sick and drowsy and felt hot. Diarrhea was often present (which is rare in other types of peritonitis). The abdomen was distended all over, and markedly tender without much localization and showed some protection, but not the splinting of appendicitis or perforation. As in overwhelming infection elsewhere the white count may be low, but is usually very high, 22,000 to 50,000. Only one of my five cases had a count under 20,000. One might say the general signs suggest the acute onset of a pneumonia but that all local signs are abdominal.

As to operative findings, greenish pus and thick masses of fibrin, usually loculated between coils of intestine and in greatest amount in the pelvis, were found in all cases. The tubes may be swollen and edematous as may the appendix and other portions of the intestine. The peculiar color of the exudate and the tendency to form solid masses makes the diagnosis evident after the abdomen is open. In one case I thought we had an acute salpingitis. In none did the appendix seem more inflamed than the surrounding bowel.

Three of the cases seen by me recovered following operation, though they all had a stormy convalescence. Perhaps these would have recovered without operation. They all drained profusely for two weeks or more. After seeing the amount of toxic material in these abdomens and the amount

of drainage, I cannot help but feel that operation is of value. One might say that this exudate corresponds to an empyema following a pneumonia, the removal of which is considered essential.

Also, not once in these five cases was the diagnosis of pneumococcus peritonitis positively made, though in nearly all suggested. Laparotomy is certainly indicated when there is a question of an appendicitis or other localized cause of peritonitis.

I had the privilege of seeing a case of peritonitis with Dr. Forbes in which diagnosis was made by an exploring needle removing a tiny bit of pus. This happened to be a streptococcus peritonitis and was later operated upon. This is the only sure differentiation of pneumococcus from other peritonitis and may be considered if desired. However, needle puncture of the abdomen must contain some risk, and if findings are negative, still leaves some doubt as to whether the infected area was reached.

One question I would like to ask Dr. Friedman. Should antipneumococcus serum be given consideration in the treatment of these cases?

Charles N. Meader, Denver: We have all been brought up on the belief that if you find any lesion in the chest, in an apparently surgical abdomen, you do not advise operation. The condition under discussion is an exception to that rule. Many of the patients present a pulmonary localization, and in a few cases I have seen which have come to autopsy and been proved, a beginning lobar pneumonia was found in the lower lobe of the right side —the pneumococcic peritonitis proving a part of a generalized pneumococcic septicemia.

O. S. Fowler, Denver: I wish to report one case. A child of eight years was brought in on Friday night and remained in school until the previous Wednesday noon. The child had had a bronchitis eight days before. We made a diagnosis of ruptured appendix. Dr. Friedman says that the diagnosis is not difficult. I think perhaps he meant the ultimate diagnosis, but when the patient comes in, I think the diagnosis has always been that of peritonitis.

In the case I have in mind, the child was drained, examination made of the fluid. Although quick recognition was not possible, the pneumococcus was recognized on culture. The child lived forty-one hours. It looked after twelve hours as though she was going to get through, but she died. She was in an extremely bad condition; her circulation was bad and she was delirious. After drainage, she seemed to revive.

Dr. Friedman (closing): It is worth remembering that the pain in pneumococcic peritonitis is not nearly as severe as in appendicitis. Dr. Meader spoke about pneumococcic peritonitis being an expression of a generalized pneumococcic septicemia. Such opinion is contrary to the prevailing belief. It is generally accepted that the infection takes place primarily in the peritoneum, and from there reaches the blood stream. Dr. Fowler wants me to dwell a little on the ease with which a diagnosis was reached. I did not wish to imply that it is so extremely easy to make the diagnosis. You should bear in mind the possibility of its occurrence when confronted with a child displaying a very high temperature, distended abdomen, perhaps diarrhea, and accompanied with delirium or stupor. Frequently a diagnosis of pneumonia is erroneously made because of the extreme toxemia and the rapid respirations frequently accompanied with an expiratory grunt. This is especially likely to occur in a deep seated pneumonia; and here the x-ray will prove of inestimable help. Moreover, cough is not usually present in peritonitis. Appendicitis, generally speaking, should not be confused with pneumococcic peritonitis. The child with acute appendicitis presents an entirely different picture. It is alert; it is not very sick; the abdomen, unless there is a complicating peritonitis, is not distended; on the contrary, it is usually flat. The leukocyte count as a rule is not as high in appendicitis; but the most striking difference is that the sensorium in appendicitis is unclouded, whereas in pneumococcic peritonitis the cerebral functions are interfered with by the toxemia.

ACQUIRED MASSIVE ATELECTASIS OF THE LUNG*

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Massive atelectasis of the lung has occupied a conspicuous position in recent medical literature. First described about seventy-five years ago, it was "rediscovered" by Pasteur[15] in 1910, since which time numerous reports of its occurrence as a postoperative and posttraumatic complication have appeared. No attempt will be made to review this literature, but for this purpose the reader is referred especially to the excellent articles of Bowen[1] and Sante.[2]

The earliest reports of this condition dealt especially with the congenital form, in which the lung, or a part thereof, persists in its fetal form, while those appearing since Pasteur's article have been mainly limited to the acquired condition occurring after the lung has attained a condition of complete expansion and function. It is to the latter group that this discussion is especially directed, and of this group of cases the author wishes to stress the importance of the non-postoperative and non-traumatic occurrence of massive collapse of the lung, both from the standpoint of probable incidence and its clinical importance.

Of the numerous definitive descriptions which have appeared, the term employed by the French—état foetal—recommends itself for its brevity, and the brief description of Sir John Rose Bradford[18] for its lucidity while avoiding the pitfall of controversial

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questions of etiology—"a collapse of the lung more or less extensive, where there is no gross lesion such as fluid or air in the pleura to account for its presence."

However, the much discussed question of etiology cannot be avoided in any presentation of this subject, and especially is this true of the decision as to the form of treatment to be employed in any given case of acquired massive collapse. Since very little experimental work is reported, most of the etiological causes advanced rest solely on a theoretical basis. In general these may be placed under one of the following heads: (1) Bronchial obstruction from inside the bronchus; (2) Bronchial obstruction from outside the bronchus; (3) Postural effects; (4) Paralytic origin; (5) Reflex.

Obstruction from within the bronchus.

The vast majority of observers have accepted this as the most frequent and probable cause. Since the condition has been found to occur in connection with diseases of the lower respiratory tract, in which increased and ofttimes tenacious secretions play an important role in partially or totally occluding a bronchial tube, this has appeared to be a sufficient explanation. That obstruction (by a mucus plug, etc.) may occur in capillary bronchitis, whooping-cough, pneumonia, in the course of a pulmonary hemorrhage, or as in the act of vomiting[6] there is no question; but that these are more than contributory factors is a question already raised. Sante[2] in discussing this states:

> In no available case was there post mortem evidence of bronchial obstruction, pleural effusion or other lesions that might interfere with aeration of the lung. Small amounts of mucus have been found in the bronchi, but it is questionable whether these could have been sufficient to be considered as etiologic factors in the production of the lesion.

Yet the same author[3] considers some form of actual occlusion of the bronchioles as an essential factor in the production of massive or partial collapse. In a very recent report by Lee[25] and his associates, the authors report:

> The removal of an obstructing mass of bronchial secretion from the left main bronchus of a human suffering with the classical symptoms of massive postoperative pulmonary atelectasis, and its injection into the right main bronchus of a dog, and the production in that dog of all the clinical symptoms and physical signs of massive postoperative pulmonary atelectasis; also the experimental production of massive atelectasis in four dogs by means of the introduction into the bronchi of a mixture of acacia whose physical properties and viscosity are approximately the same as that of the bronchial secretion which we removed from this patient.

Wet anesthesias have frequently been noted to precede postoperative collapse. Hearn and Clerf[4] report such a complication with seven recurring collapses in the same patient, each relieved by bronchoscopy, and attribute the collapse in each instance to bronchial obstruction by thick tenacious secretion. Retained secretions follow cough inhibition, and these are more frequently found in operations on the upper abdomen since high abdominal incisions inhibit cough more than those of the lower abdomen (Carlson[5]).

Cough has been described by Jackson as "the watchdog of the respiration" and the injudicious pre- and postoperative use of morphine to the extent of suppressing cough may well play an important role.

An interesting theory as to the association of lobar pneumonia and massive collapse is advanced by Coryllos and Birnbaum,[7] who on the basis of both clinical and experimental observations conclude:

> In our opinion the sequence of pneumonia is as follows: In the course of a pneumococcic infection of the bronchial tree, occlusion of a lobar bronchus occurs and this starts the syndrome called lobar pneumonia. This obstruction is effected by the viscid fibrinous bronchial exudate, aided perhaps by edema of the mucosa and possible damage to the ciliated epithelium.

These authors likewise state that "there is but one cause in the production of collapse of the lungs, and that is the more or less temporary, but complete, occlusion of a bronchus by a plug of mucus acting as a foreign body and intercepting completely the penetration of air into the portion of lung depending upon that bronchus." In 1850, Gairdner described a "ball valve" action of this mucus plug caught in a bronchial tube of diminishing caliber, allowing the air to escape but preventing its entrance into the alveoli. He entirely disearded the idea that air might be absorbed by the circulating blood—a fact shown by Virchow. That this is a major factor in the removal of air imprisoned in the air cells and that this does not occur with any considerable impairment

of the circulation is now accepted.

Bronchial obstruction from stenosis due to pressure exerted from outside the bronchi

This factor has received only scant consideration. One of the cases to follow appears to fall in this group, and I wish especially to stress the possibility of external bronchial stenosis as an etiological factor in massive collapse.

Gibson[8] and Stoloff[9] report instances of external stenosis; the latter reported a two-year-old patient in whom he attributed massive collapse to involvement of regional lymph glands "to such an extent as to contribute to the causation of a stenosis of the bronchus with resultant massive atelectasis of the left lung." Probably added to this was "perifocal inflammation of the bronchial wall," which caused narrowing and added to these exudate and mucus. He also quotes Simon and Redeker, Duken and Lerche, as having cited other instances of atelectasis of parts of the lung following pressure of tuberculous glands.

The heart as a cause of bronchial stenosis and resultant atelectasis has apparently received little attention. Steele[10] reports a bronchiectasis following compression of the left bronchus by an enlarged left auricle. This author states that the first case report of this condition was made in 1838 by King. Following this isolated reports appear. (Friedreich 1867, Taylor 1889.) In 1912 Kahler appears to have made the first bronchoscopic study of narrowing of the left bronchus in mitral stenosis. In one case "lung compression" was noted clinically and confirmed by autopsy. Gabert and Shaw[11] report compression with lung changes, but appear not to have recognized atelectasis if it existed.

Wessler and Fried[12] report four instances of encapsulated pericardial effusion. These "pericardial adhesions are most apt to form in those situations in which the movements of the heart are least energetic; namely, in the region of the great vessels and along the right border at the site of the right auricle." It would appear that this may furnish another potential cause of bronchial stenosis with resultant atelectasis.

Posture

Webb, Foster and Gilbert[13] described a physiological atelectasis showing "that if a normal person lies continuously on one side there is marked displacement of the mediastinum and opacity of the lung in the dependent side. Such an effect, however, quickly disappears when the person turns on his back and takes a deep breath."

Scott and Joelson[14] discuss posture and quote Briscoe as attributing the chief role in the etiology to the recumbency of the patient, but points out that while this posture obtains in most laparotomies the incidence of massive collapse is about 1 per cent. They describe a patient who following each of two separate kidney operations, with the usual lateral operating posture, developed after each a massive collapse in the opposite or dependent lying lung.

The authors find, including their own four cases, nine cases following operations that necessitated the patient's lying on his side, and in each the collapse occurred in the dependent lung, and advance the opinion that a nervous reflex is the underlying cause. They note sibilant rales in the affected lung not unlike those noted in an asthmatic attack and conclude that a reflex narrowing of the smaller air passages occurs. This would explain the frequent postoperative bronchopneumonias as bilateral lobular atelectatic areas. The initial reflex is probably vasodilative in nature.

Paralytic origin

While postdiphtheritic paralysis of the diaphragm was mentioned by Pasteur,[15] there appears to be very scant experimental evidence in its favor as an etiological factor[16] in massive collapse.

Reflex causes of massive collapse

To ascribe a pulmonary reflex as the cause of so profound a change in physiology as massive collapse is at best begging the question and unsatisfactory, yet in numerous instances no other explanation offers itself. Bradford[18] reported partial or complete collapse of the contralateral lung following the most trivial shrapnel injuries of the chest

or abdomen. He states that this complication occurred in 5 to 10 per cent of gunshot wounds of the chest, involving the affected or contralateral side alike, and may follow

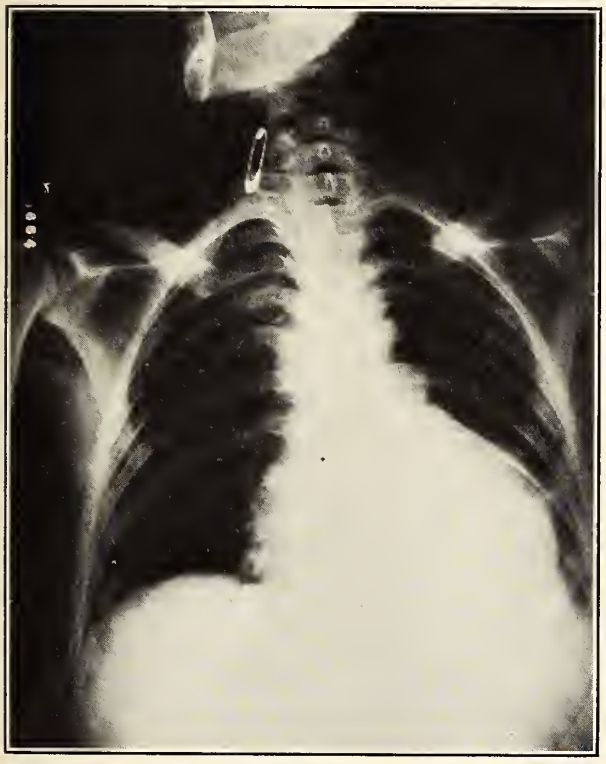


Fig. 1.

non-penetrating wounds of the abdomen, falls, etc. Sante[2] mentions its occurrence following fracture of the femur and pelvis and in association with a pneumothorax on the same side, in which subsequent events proved that the atelectasis could not have been dependent upon the pneumothorax compression of the lung. Cameron[17] cites two cases occurring following the removal of deep abdominal drains. Sante,[2] Gibson[8] and Scott[14] all conclude that nervous reflex initiates this process. That posture may play a contributing part is accepted by most of these authors. Scott and Cutler state that posture during the operative and postoperative periods influences the localization of the massive collapse. They further state—"We believe that the process is initiated by a nervous reflex, probably largely vasomotor, which results in a narrowing of the lumen in the peripheral bronchioles by venous engorgement, swelling of the mucous membrane, and the elaboration of a tenacious secretion." Associated with this they believe is a diminished ventilation volume as an important contributing factor.

In spite of this general acceptance of the reflex cause of massive collapse there is only slight experimental evidence to fortify the nerve reflex hypothesis. Carlson[5] by stimulating the intestine and peripheral nerves of an extremely rudimentary lung of amphibians produced contraction and expansion, but otherwise there is complete lack of corroboration for the reflex factor.

Clinical types

Postoperative: While the majority of these have followed operation upon the upper abdomen, the complication is by no means limited to this type of surgery and has been noted following operations remotely situated as to the lungs.

Traumatic: The injury need bear no relation to the lung or the side of the lung involved.

Non-postoperative, non-traumatic: It is this group which offers the greatest difficulty in diagnosis and has received the least attention. Jacobaeus[10] states—"I have not come across (in the literature) massive atelectatic collapse described as a complication to internal disease." He establishes priority in record-

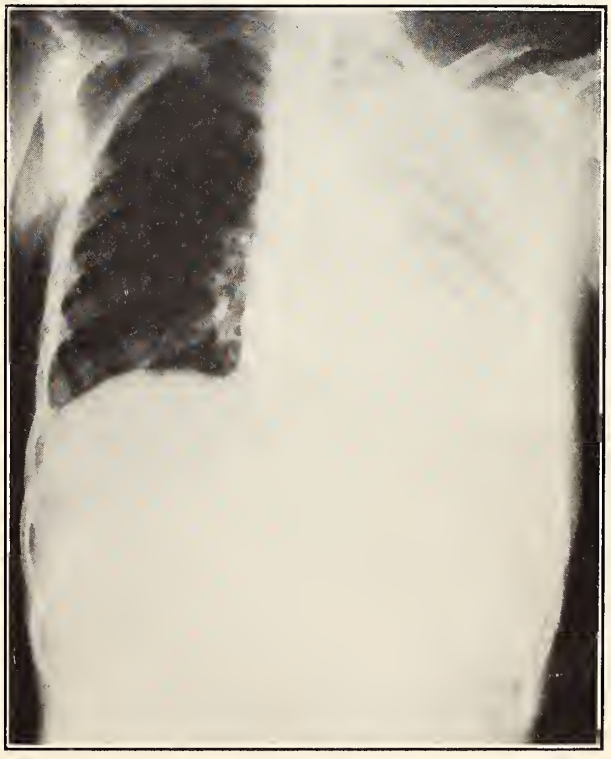


Fig. 2.

ing two such cases—one following an acute pneumonia and one following a profuse pulmonary hemorrhage (proven by autopsy). He suggests that this condition probably

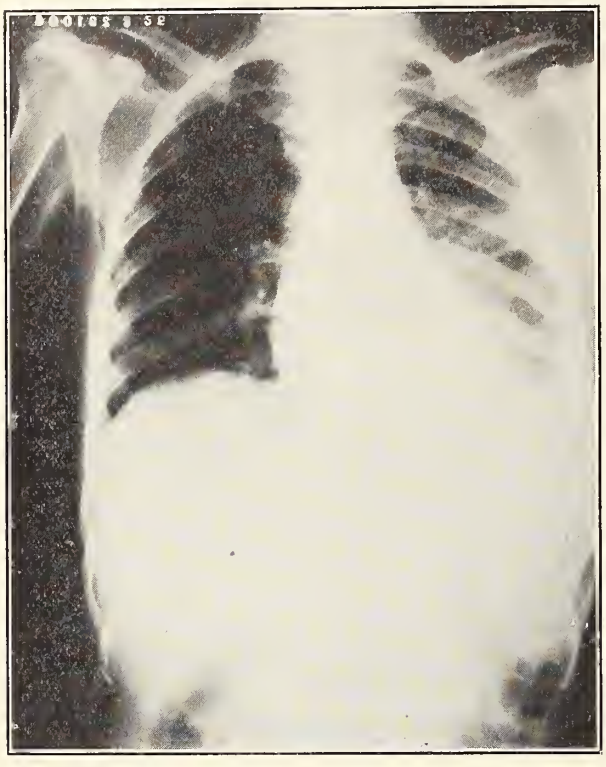


Fig. 3.

occurs with fair frequency but is not demonstrated because of the undesirability of subjecting the patient to extensive examinations at such a time and to the tendency to ascribe cardiac and mediastinal displacement to the pulling effect of adhesions in these old fibroid tuberculous lungs.

As a cause of the collapse following the pneumonia, the author suggests that the cause of the bronchial obstruction, if present, seems to be due to a central infiltration around the main bronchi, as indicated in the radiograms. Mohler[6] has added another instance of an atelectasis secondary to and occurring thirteen days after the onset of pneumonia.

Symptoms

In all of these types the symptoms may be frankly those of respiratory distress, or such symptoms may be overshadowed by other manifestations so that the condition is recognized only when the examiner bears in mind the dictum of Sewall,[20] and emphasized by Bowen,[1] to "think atelectasis" when making any lung examination, for there are no clinical features which with certainty point to atelectasis save the demonstration by physical or x-ray means of the change which is pathognomonic of the condition—a shifting of the mediastinum and its contents toward the affected side—and at times this can only with certainty be recognized after the reentry of air to the lung has allowed a return of the mediastinum to its normal position.

Diagnosis

This rests as stated in the preceding paragraph upon the demonstration primarily of a respiratory shifting of the mediastinal contents with inspiration toward the affected side and with expiration away from the affected side. This may be noted as a shifting of the cardiac impulse or of either border of the heart. Diminished resonance and breath sounds on the affected side contrast strongly with the compensatory emphysema of the contralateral side. If the x-ray be employed, and when available there exists no excuse for its omission, either a fluoroscopic examination, noting the respiratory mediastinal shifting, or two radiograms—one in suspended deep inspiration and one in suspended deep expiration—will be required to accurately demonstrate this condition. The

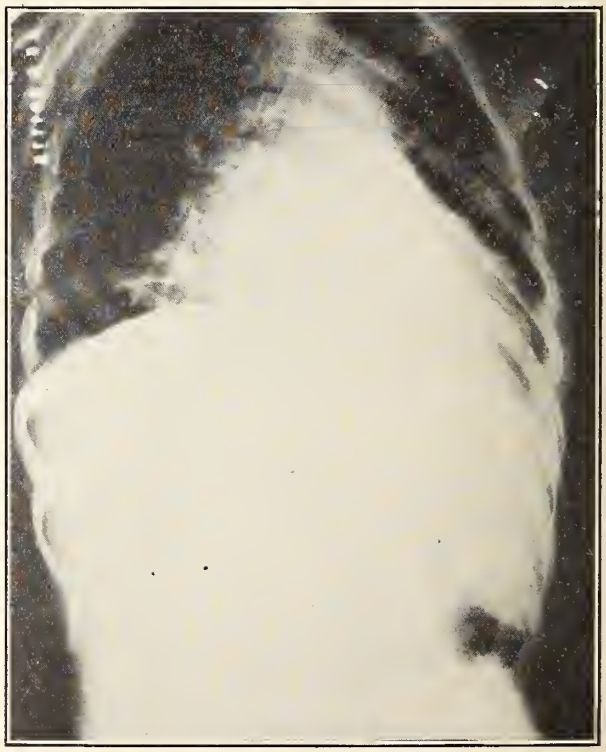


Fig. 4.

collapsed portion exhibits a density as great as in lobar pneumonia, and there is no means of certainly differentiating these save by the method described above. Probably this den-

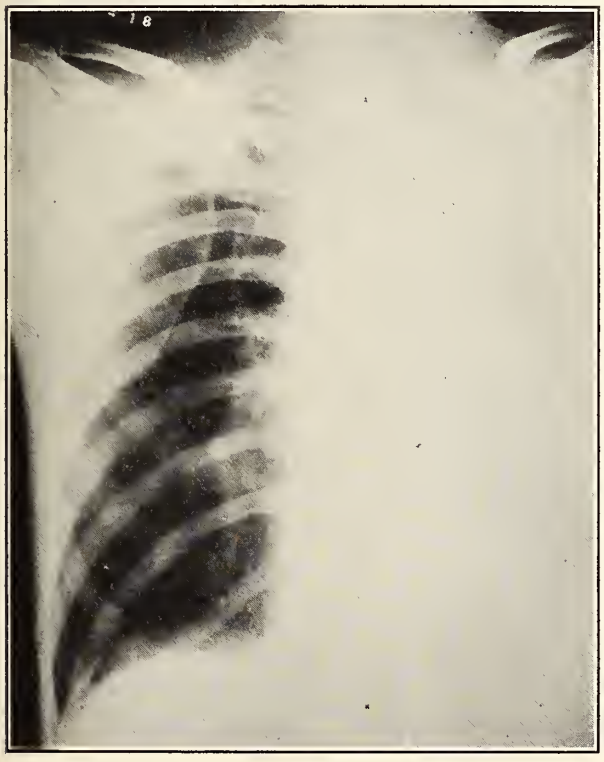


Fig. 5.

sity is due to an associated engorgement of the blood vessels and lymphatics, for Hablis-ton[21] has shown that the negative pressures attained in the pleural space reach extreme figures. In two cases he noted the pressures to be:

—16 to —20 mm. Hg. = —245 to —270 mm. water
—25 to —32 mm. Hg. = —337 to —432 mm. water

Such negative pressures may conceivably exert a powerful suction effect upon all fluid-containing structures, enlarging their diameters and increasing the quantity of fluids held therein.

The time required for the production of a massive collapse may be very short, possibly only a few minutes in certain instances, dependent upon the rapidity of occlusion and the integrity of the circulation. Once established and unless promptly relieved, the lung remains collapsed from a few hours to as long as four weeks. During this period of collapse the lung tissue is peculiarly susceptible to bacterial invasion, hence the necessity of early recognition and prompt relief where this is possible.

Treatment

Prophylaxis: Bowen[1] states that "collapse cannot occur in the absence of bronchitis" and has suggested that "after an operation is not the best time to correct habits and customs of a lifetime" and attributes massive collapse to a bronchitis acquired through faulty management of the patient. Postural defects may be avoided by frequent changes; respiratory inhibition by tight bandages, etc., may readily be avoided if the need be recognized. Hyperventilation at the end of anesthesia by means of carbon-dioxide-oxygen has been suggested by Henderson[24] and Scott and Cutler[22] as a means of preventing this complication and has also been effective in causing a reinflation of the collapsed lung in their hands.

Sante[2] has advanced what appears to be the simplest method of treatment—that of simply "rolling the patient back and forth on the uninvolved side (affected side uppermost) and causing him to cough"—a method quite uniformly successful in his hands. Others have not appeared to attain his results, though frequently this is adequate. Be-



Fig. 6.

cause of frequent failures and because of the hazard in allowing the lung to remain in a state of collapse, bronchoscopists throughout the world have attempted, and

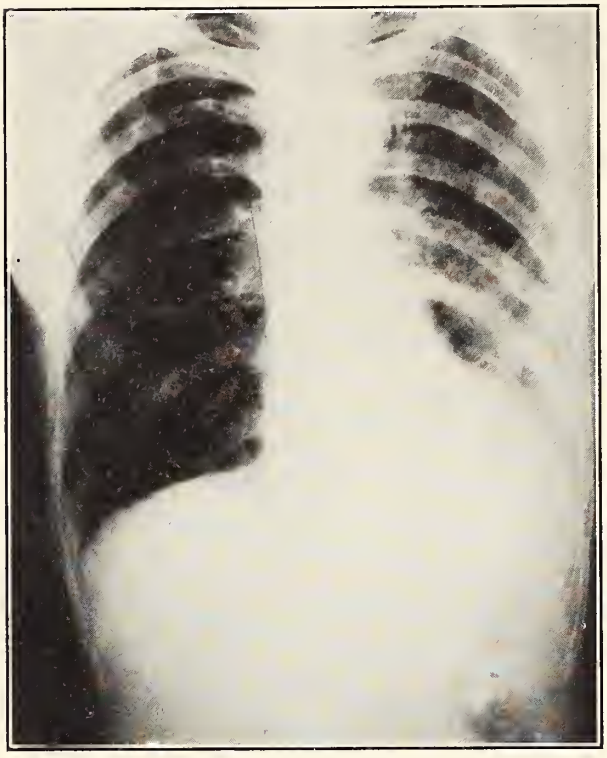


Fig. 7.

with frequent success, the removal of occluding secretions. If a mucus plug be the sole etiological cause this appears to be entirely consistent, but if there be an important nerve reflex factor to be reckoned with it is possible that bronchoscopic drainage may be a contributing factor in setting off this nerve reflex. At least one instance appears in the literature to substantiate this idea, for Cassady[23] reports a case of bronchial asthma which was subjected to repeated bronchoscopic drainages. Forty-eight hours after one of these, he developed a sudden massive collapse on the side of the aspiration. This continued for more than two months (the patient was not aspirated for relief of collapse). The author concludes that massive collapse may follow bronchoscopy.

Save in the hands of experienced bronchoscopists, it would seem that the simpler method of Sante should be given a thorough trial before the bronchoscopic method is employed.

Pneumothorax for the relief of the high intrapleural pressure has been given a limited trial. Theoretically it appears sound, for while it will not be effective in removing a mucus plug, it may be expected in some measure to modify the intrapulmonary suction acting upon blood vessels and lymphatics. Bowen[1] mentions this "only to condemn it," but until the etiology is better understood a method which so promptly removes one of the chief features of the condition—high intrapleural suction with its attendant effects—may bear further investigation in the hands of those thoroughly familiar with this procedure.

CASE HISTORIES

(See Figs. 1, 2, 3, 4.)

Case No. 1: B. S., a female, aged thirty-four years, entered the hospital with the signs and symptoms of exophthalmic goitre and mitral stenosis and insufficiency complicated by pleurisy with effusion and pericarditis. While under observation she developed a phlebitis involving the left arm. The left chest was aspirated four times, the amount of fluid withdrawn varying from 150 c. c. to 800 c. c. at the last tapping, on each occasion the fluid was straw-colored and sterils. Shortly after the last tapping an incessant cough appeared a marked increase in pulse rate. Examination seemed to disclose a marked cardiac enlargement to the left, but x-ray showed a massive collapse of the left lung. Without any special treatment other than frequent changes in posture these signs

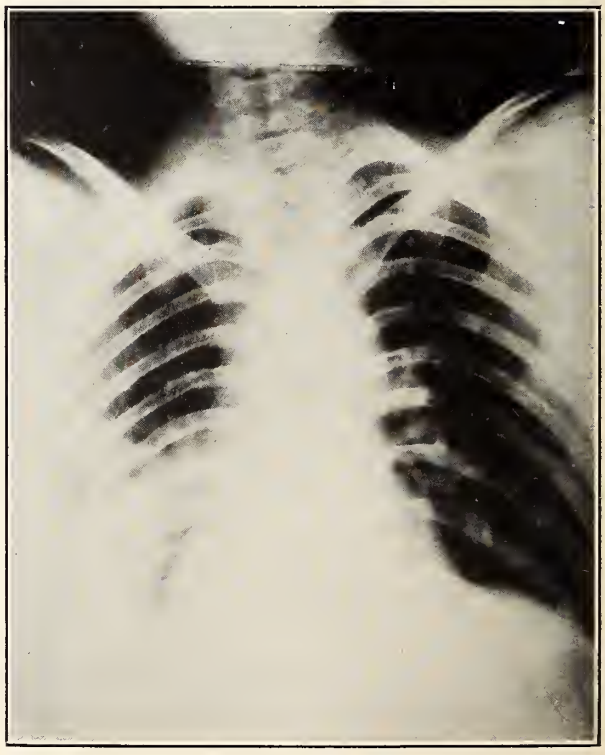


Fig. 8.

(x-ray) had disappeared with a return to normal two days following (spontaneous cure).

As etiological factors in the production of this massive atelectasis may be advanced: (1) left

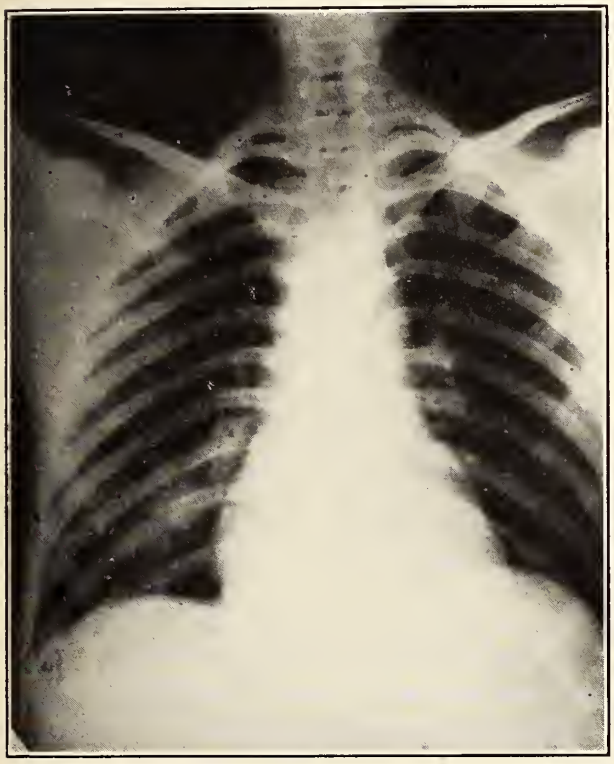


Fig. 9.

auricular enlargement associated with mitral disease; (2) pericardial effusion; (3) pleural nerve reflex associated with the last thoracentesis, and following which the symptoms appeared to be aggravated, although it is notable in this instance that pain or dyspnea were not increased at this time.

(See Figs. 5, 6, 7.)

Case No. 2: C. G., a male, aged fifty-four, entered the hospital complaining of (1) dyspnea and (2) pain in the left chest.

Shortly prior to admission the patient slipped while working, but broke his fall by holding on to a rope. He seemed to strain the left side of his chest and had some pain on respiration. Later, he began to feel feverish and the pain in the left chest became worse. Since that time he has run a high temperature, and has been very short of breath. He has had frequent cough, which, as well as deep inspiration, increased the sharp pain in the left chest. He has raised a small amount of blood-streaked, watery sputum.

The previous history was irrelevant.

Examination disclosed a middle aged man in evident respiratory distress, with cough. There were minor skin bruises on the left chest on the mid-axillary line at the level of the sixth rib. The left lung was dull with loud bronchial breathing throughout. The right lung presented the signs of a compensatory emphysema. The heart was not thought to be displaced, the apex beat being recorded as in the fifth intercostal space, inside the mid-clavicular line. X-rays showed the entire left chest uniformly dull, and the heart and mediastinum displaced to the left. The diagnosis was massive collapse. The next day showed no change from the previous examination.

A bronchoscopy was done which demonstrated a plug of mucus and blood in the left main bronchus which was partially removed. Following this the breath sounds came through better, especially in the left upper lobe, with some reduction in temperature.

Subsequently there was slight clearing and the heart showed a partial return to the right, but before this was complete a left basal pneumonia developed. Figure 7 shows an incomplete clearing with the heart in nearly a normal position.

The explanation lies between a reflex cause as advanced by Bradford[18] and a bronchial plug. While some mucus and blood were removed at bronchoscopy, the results were not sufficient to warrant the conclusion that this was the sole etiological factor in this patient.

(See Figs. 8, 9.)

Case No. 3: L. B., a male, aged twenty-one, was a patient in the surgical wards. Within eighteen hours after an appendectomy his pulse and respiration became very high, and there was pain in the right chest. Examination disclosed dullness in the right base, bronchial sounds diminished above but absent below, whispered voice unchanged, tactile fremitus increased posteriorly. The left heart border was inside the nipple line and did not

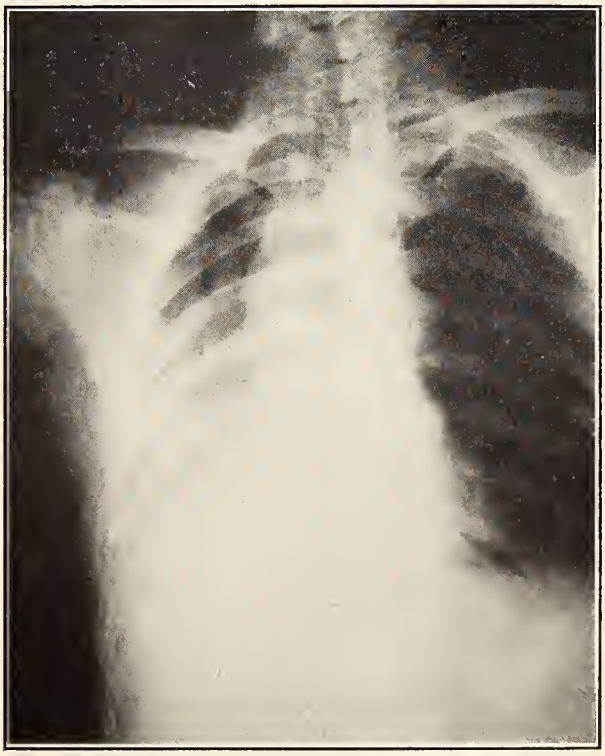


Fig. 10.

appear to shift with respiration, the heart sounds were best heard to the right. The impression was that we were dealing with either an atelectasis or a basal pneumonia.

X-rays showed the heart and mediastinum displaced to the right. The right diaphragm was not made out. The lower half of the right chest was dull with a few areas of lesser density. The upper half of the right chest and the entire left chest were clear. The diagnosis was massive collapse of the right lower and middle lobes.

Four days later the heart was shifted back almost to the normal position, but there was evidence of some consolidation in the lower right lung.

This case falls in the frequently encountered

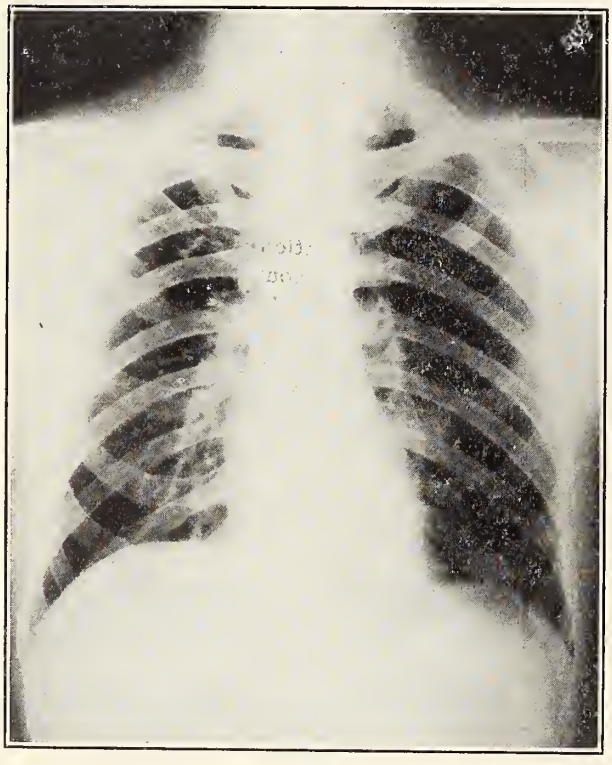


Fig. 11.

post-operative group, and since there is no apparent cause must be placed in the reflex group. (See Figs. 10, 11.)

Case No. 4: The case was reported by Dr. Joseph L. Harvey at the Portland session of the American Medical Association. The patient, a man of thirty-eight, with an old history of pulmonary tuberculosis had an auto accident with numerous skin injuries about the face and thorax. There were pain lateral to the right nipple, limitation of motion on the right and slight hemoptysis, which, with dullness on the right and hyperresonance above the fifth rib, occasioned x-ray examination. This showed a massive collapse below, with pneumothorax above, and displacement of mediastinum and contents to the right.[4] The latter disappeared following coughing up of several blood clots after about forty-eight hours.

This case is almost unique in that massive collapse and pneumothorax appear in the same patient. Sir John Rose Bradford[18] calls attention to the rarity of this as a contralateral complication, but makes no mention of its occurrence on the same side as the collapse. He states—"No case of contralateral collapse has fallen under my observation as a complication of pleural effusion, nor yet in pneumothorax, even when the latter has been the result of a gun-shot wound. It is possible that it may occur in pneumothorax, but that such cases are rapidly fatal, or it may be that the urgent dyspnea present in the early stages of pneumothorax prevents its development."

Sante[2a] recently reports a case similar to this one in that massive collapse and pneumothorax occurred on the same side.

It appears probable that the collapse in this instance was due to plugging of the bronchus by traumatic bleeding, but a reflex factor associated with a traumatic pneumothorax must be considered. In any event the rarity of these combined lesions seems sufficient reason for inclusion in this small group of cases.

REFERENCES

[1]Bowen, David R.: Acute Massive Collapse (Atelectasis) of the Lung, Am. J. Roentgenol. 21:101 (Feb.), 1929.

[2]Sante, L. R.: Massive (Atelectatic) Collapse of the Lung, Ann. Surg. 88:161, 1928.

[3]Sante, L. R.: Massive Collapse of the Lung, J. A. M. A. 88:1539 (May 14), 1927.

[4]Hearn, W. P., and Clerf, L H.: Post-Operative Massive Collapse of the Lung, Ann. Surg. 85:54 (Jan.), 1927.

[5]Carlson, A. J., and Luckhart, A. B.: Studies on Visceral Sensory Nervous System, A. J. Physiol, 55:13 (Feb.), 1921.

[6]Mohler, H. K.: Acute Massive (Non-Surgical, Non-Traumatic) Pulmonary Atelectasis, A. J. M. S. 177:507 (Apr.), 1929.

[7]Coryllos, Pol N., and Birnbaum, G. L.: Lobar Pneumonia Considered as Pneumococcic Massive Atelectasis of the Lung, Bull. New York Acad. Med., 4:384 (Mar.), 1928.

[8]Gibson, Charles L.: Massive Collapse of Lung and Resume of Eight Cases, A. J. Surg. 5:509 (Nov.), 1928.

[9]Stoloff, E. Gordon: Acute Massive Atelectasis of the Lung, A. J. Dis. Child., 35:239 (Feb.), 1928.

[10]Steele, J. Murray: Compression and Displacement of the Bronchi in Mitral Stenosis, A. H. J., 4:53 (Oct.), 1928.

[11]Gabert and Shaw—Quoted from Steele.

[12]Wessler, H., and Fried, Jacob: Encapsulated Pericardial Effusions, A. J. M. S., 175:331 (Mar.), 1928.

[13]Webb, G. B., Forster, A. M., and Gilbert, G. B.: Postural Rest for Pulmonary Tuberculosis, J. A. M. A., 76:846 (March 26), 1921.

[14]Scott, W. J. M., and Joelson, J. J.: Post-Operative Massive Atelectasis, Arch. of Surg., 15:855 (Dec.), 1927.

[15]Pasteur, W.: Massive Collapse of the Lung, Lancet 2:1351, 1908.

[16]Boland, C. R., and Sheret, J. E.: Post-Operative Massive Collapse, Lancet 2:111 (July 21), 1928.

[17]Cameron, Edward S.: Post-Operative Massive

Collapse of the Lung, Rhode Island M. J., 11:105 (July), 1928.

[18]Bradford, John Rose: Massive Collapse of the Lung, Quart. J. Med. 12:127 (Oct.), 1918, (Jan.), 1919.

[19]Jacobaeus, H. C.: Massive Atelectatic Collapse of Lung in the Course of two Cases of Internal Disease, Acta Med. Scandinav., 68:361, 1928.

[20]Sewall, Henry: Pulmonary Atelectasis as a Source of Confusion in Physical Examination of the Chest, Am. Rev. Tuberc., 4:811 (Jan.), 1921.

[21]Habliston, Charles C.: Intrapleural Pressures in Massive Collapse of the Lung, Am. J. M. Sc., 176:830 (Dec.) 1928.

[22]Scott, W. J. M., and Cutler, E. C.: Post-Operative Massive Atelectasis, J. A. M. A., 90:1759 (June 2), 1928.

[23]Cassady, J. V.: Massive Atelectasis of the Lung, following Bronchoscopy, Arch. Otolaryng., 8:520 (Nov.), 1928.

[24]Henderson, Yandell: The Physiology of Atelectasis, J. A. M. A., 93:96 (July 13), 1929.

[25]Lee, Walter Estell, Tucker, Gabriel, Clerf, Louis, Ravdin, I. S., Pendergrass, Eugene P.: Post-Operative Pulmonary Atelectasis and Its Relation to Post-Operative Pneumonia. A demonstration with motion pictures of the clinical phenomena, bronchoscopic drainage and experimental production of post-operative pulmonary Atelectasis, Transactions of the College of Physicians of Philadelphia, 50:75, 1928.

[26]Sante, L. R.: Massive (atelectatic) Collapse of the Lung, Am. J. Roent., 20:213, 1928.

DISCUSSION

Note—For lack of time portions of this paper as published were not read. Certain points raised in the discussion which were covered in the complete paper and which were responded to in the closing discussion are omitted from the report of the same.

O. M. Gilbert, Boulder: Mr. President, Ladies and Gentlemen: I have had the privilege of reading Dr. Burnett's paper before, so I have had a chance to make some notes upon it, which may make it appear that I am more familiar with massive collapse than I am.

Dr. Burnett has presented the subject in his usual clear and concise way, adding materially to our knowledge of the subject. I have no personal experience with massive collapse, or if so, I have not recognized it, though I suspect that two cases of atypical pneumonia, seen some years ago, in which the heart was unaccountably displaced toward the affected side, may have been such.

Corryllos and Birnbaum, in the March, 1928, bulletin of the New York Academy of Medicine, discuss lobar pneumonia from the standpoint of it being primarily a massive atelectasis of pneumococcic origin.

Peppard in Minnesota Medicine, January, 1927, discusses it as a post-pneumonic complication, and considers the two recognized etiological factors: (1) immobility and retraction of the chest wall and diaphragm, and (2) bronchial obstruction; both active in its production.

Julius Wilson, in the American Review of Tuberculosis, for March, 1929, reports a case following a pulmonary hemorrhage in which a few days after the hemorrhage, the patient expectorated a cast of a main bronchus 3 inches long, after which the lung rapidly reinflated and the patient recovered.

Sante, in the Journal of the A. M. A. of May 14, 1927, describes his now well known method of turning the patient onto the unaffected side and rocking him to and fro, at the same time encouraging him to cough. This method seems to have been very effective in almost all instances.

Chevalier Jackson's experience in relieving the condition by bronchoscopic suction has been very striking, but, as Sante says, a skilled bronchoscopist is not available in most cases.

I would emphasize the diagnostic points of most importance; namely, shifting of mediastinal structures toward the affected side, because that differentiates it in almost all instances, clinically, from the other conditions that might simulate it; for instance, spontaneous pneumothorax, pleural effusions, pneumonia, or malignant growths. This can be demonstrated by physical examination, usually, although it is most definitely confirmed by x-ray, either the fluroscope or the radiograph. Now, the other would be the marked negative intra-pleural pressure on the affected side. I am sure if I had gotten my manometer there in time, —if these cases were as I now suspect, cases of massive atelectasis,—instead of positive pressure creating this marked respiratory distress, I would have found a negative pressure of from six to thirteen,—(and some put it even as high as twenty-two) centimenters of water, negative pressure. So that would be one of the most distinguishing factors that I can conceive of next to x-ray. So I would suggest we all think of massive atelectasis when any obscure condition in the chest occurs, particularly occurring rather suddenly and having the characteristics of some of the catastrophic affairs, such as spontaneous collapse of the lung, or lung rupture, and look, at least, for the displacement of the heart. If we have not the x-ray, or other means, we can usually distinguish it by that means. I would also emphasize this simple measure of treatment recommended by Sante, simply turning the patient on the unaffected side, and rocking him to and fro. A patient seen more recently and upon whom I used this treatment was given some relief. However, a day or two later I found a massive pleural effusion which makes me think I was wrong in the location of my heart beat. Otherwise, it was one of the cases in which pleural effusion is said to rapidly follow. Which of these, I cannot say. I believe that if we look out for this condition, and apply some of these tests, we shall find that it is much more frequent than we have ever thought of.

T. E. Carmody, Denver: In speaking on this subject I would like to quote one of our late members, Dr. B. H. Matthews. He said, "Look for the most likely thing in these cases that come on suddenly." The most likely thing is a massive collapse. He said, "Look for the common thing. You would not be likely to expect a man who had been run over in the street today to have been run over by a horse and buggy."

The same thing is true here. I think one point brought out by Dr. Gilbert is proved, that bronchoscopy is the best thing in these cases. The rocking of the patient is proof that you are just simply expelling a plug, and I believe that is the most important thing. Another thing that I would like to read into the record, as they say in court, is that the x-ray should be made immediately; and we have a few good x-ray men in Colorado, I know, despite the fact of what was said in our discussion of sinuses the other day, that there was only one man who could make x-rays. I have some good ones here. Now, I have had considerable trouble in this class of cases, having seen quite a number of them, and having seen three in one month in St. Luke's Hospital recently. The reason that we have had good results is because of bronchoscopy, and the reason we did not call at-

tention to this before we were interested in foreign bodies in bronchoscopy. We had collapse of the lung; we had many cases of collapse of the lung. Dr. Gilbert calls attention to Corryllos and Birnbaum's work, and to Chevalier Jackson's. I do not think that Corryllos' work—and he did quite a lot of it alone before he was associated with Birnbaum—I don't think it is so far fetched, because I think all cases of foreign bodies, as a bullet, or a tack, or whatever it is, a pin, or whether it is a bit of mucus, is something we have to take into consideration.

Dr. Gilbert: Or pneumococcus.

Dr. Carmody (continuing): Or pneumococcus. We had x-rays of the sinuses in four of the five first cases, and we found that all of them had sinus infection. These were all cases following operation. They came on within twenty-four hours, most of them; one of them thirty-six, I believe, following operative procedures, but they were all abdominal procedures, it happened. Now, you might say, "What is pneumonia?" We do not see the post-operative pneumonias we saw a few years ago, simply because diagnosis is made by our clinical or x-ray men before that time. That is why we do not have post-operative pneumonia. The fact that Dr. Burnett has read this paper has proven our having sequelae in this very condition, and that is what we want to try to prevent. I might go on with a few statistics, but I will call your attention to some of the slides, and call your attention to what Dr. Burnett has told you.

The important thing in seeing these cases and in bronchoscoping them is to get all of your mucous or all of your plug, or whatever it happens to be, and you can see those if you are expert in that work—putting your tube down to the plug. In some cases you have collapse due to pressure on the outside. In many of your cases you will feel your foreign body hit your suction tube. Now, I have two cases here that I would like to show. One of them was a pneumonic process before we were able to x-ray it.

F. B. Stephenson, Denver: Dr. Carmody had one or two cases that were very spectacular in clearing up the atelectasis almost immediately after removal of the obstructive material. I am sorry that he was unable to get those plates.

With regard to pneumonia, I have had occasion to study quite a large series of lobar pneumonia cases at the Children's Hospital, and in none of those was I able to see that there was any shifting of the mediastinum to the affected side. On the other hand, we saw quite a considerable number of these atelectasis cases from foreign body, in all of which this shifting is in evidence unless the atelectatic area is small. Now if a lobar pneumonia does not cause a shifting and an atelectasis of that one lobe does, I do not see how you can radiologically agree that a lobar pneumonia is an atelectasis either to begin with or later. The last case Dr. Burnett showed I happened to see with Dr. Harvey at the State Hospital, and we found that there was a fractured rib. In that case, with depression of the rib, and some evidence of fluid in the pleural cavity, which was probably blood, we concluded there was hemorrhage. The patient had coughed up some of the blood and it clotted in the bronchus. In this case we undertook the postural treatment, and the patient coughed up some blood clots, which relieved his atelectasis. That was within two or three hours after we had resorted to the postural method of treatment.

Dr. Burnett (closing): I very much appreciate this discussion. Dr. Gilbert has spoken of two cases in his experience which, in point of years, is twice as long as mine. No doubt he has had many others. I think it is rather remarkable how we forget things in medicine. A few years ago I saw a tuberculous patient with a massive collapse lasting a very short time. When I saw him, he had a massive collapse that did not require an x-ray to demonstrate; but he also lost that massive collapse within half an hour after I was there.

I did not know anything about Sante's method, but in turning him over while examining him we got rid of the mucous plug, and the thing cleared up. That ought to have taught me a good deal. It did for a time, and then I forgot it. At any rate, I did not recognize any other cases of massive atelectasis until this spring. All of these cases reported come from the Colorado General Hospital, and all of these were seen during a three months' service at that institution this spring. The first one I failed to recognize until we had x-ray films. Then I got to thinking of atelectasis and searched for it; in two of these cases a provisional diagnosis of massive collapse was made before the x-ray films were seen. The fourth patient I did not see, being on the surgical service.

We did not use the two-film method in any of these, the reason being that the equipment at that time could not be used fast enough to get two films, owing to a temporary condition at the hospital. However, I think that wherever that can be done, there is a real advantage.

I think Dr. Carmody has probably emphasized the most important point in bronchoscopy; that is, if it is going to be done it should be done by someone who is thoroughly familiar with this procedure. And when that is done, certainly in the cases due to bronchial plugging, we shall have good results. If on the other hand it is incompletely done, I expect that the strain of the bronchoscopy may more than offset the value of the procedure.

UNITED STATES CIVIL SERVICE EXAMINATION

The United States Civil Service Commission announces the following open competitive examination:

Associate Medical Officer (Pathology)

Applications for associate medical officer (pathology) will be rated as received by the Civil Service Commission at Washington, D. C., until June 30, 1930.

The United States Civil Service Commission calls attention to the fact that eligibles are required for filling vacancies in positions of associate medical officers (pathology) in the U. S. Public Health Service, at Ellis Island, N. Y., and Detroit, Mich.

The entrance salaries range from $3,200 to $3,700 a year.

Applicants must have been graduated with the degree of M.D. from a medical school of recognized standing; and, in addition, must have had at least two years of specialized study or practice in human pathology.

Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or the Secretary of the United States Civil Service Board of Examiners at the postoffice or custom house in any city.

AIR EMBOLISM AS A COMPLICATION IN ARTIFICIAL PNEUMOTHORAX THERAPY*

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The medical profession learned many years ago how to heal pulmonary tuberculosis when in its earlier stages, and during the past twenty years surgical methods have been discovered and perfected for improving and curing advanced cases. Partial or complete compression of the diseased lung by means of artificial pneumothorax, exeresis of the phrenic nerve, thoracoplasty, apicolysis and cauterization of pleural adhesions, represent a great wave of progress in the therapy of pulmonary tuberculosis, especially in advanced types. These procedures having attained a well recognized position in tuberculosis therapy, it remains to make them more secure and exempt from danger.

In pneumothorax treatment certain complications occur, among which air embolism is to be most dreaded. The entire technique employed in the induction of artificial pneumothorax has been devised with the principal idea in mind of avoiding this complication. Fortunately, it is not a frequent accident but when it does occur, it often proves fatal. The air which enters through a pulmonary vein may be introduced from the pneumothorax apparatus or be aspirated from an air space in the lung or pleura.

Given an advanced case with the lesions largely confined to one side, the greatest hindrance to the induction of pneumothorax is pleural adhesions. In such a case the operator, in his efforts to find a pleural pocket and to separate the two layers of the pleura, is apt to needle the lung unless he is most careful, and this may be all that is necessary to produce an air embolism. If satisfactory manometer readings indicating a free pleura are not obtained, it is common practice to change the position of the needle point by drawing it out slightly or pushing it in still farther and during this maneuver the lung is repeatedly penetrated. Not infrequently, even when the fluid in the manometer does not move or fluctuate, the operator, feeling sure that the point of his needle is in between the two layers of pleura, will introduce air in order to enlarge the air space obtained, thereby running a greater risk of producing air embolism. When the pneumothorax needle penetrates the lung, the point may enter a pulmonary vein, and especially during inspiration air can be aspirated from the tube which connects the needle with the pneumothorax apparatus. The aspiration action of the vein may even produce a slight negative manometer reading and the operator, mislead by this, introduces the air himself from the apparatus. We have been shown by Brauer that very little air is required to cause a fatal embolism. While it is questionable whether or not a small vein in a normal lung will aspirate air when entered, it is certainly true that a vein in an infiltrated area of the lung which is apt to be dilated, rigid and unable to collapse when injured, will suck in air when connection is made between it and some air pocket. The needle may establish a communication between a bronchiole, air vesicle or cavity and a pulmonary vein. It may also produce an opening between a vein in the visceral pleura or even between a vein in a pleural adhesion and the pleural space, in which case air would only be aspirated into the vein after the needle is withdrawn. This is not an unusual occurrence. It often happens in our pneumothorax work that when no manometer fluctuations can be obtained, we disconnect our needle and run a stilette through it to see if its lumen is free. Unless we are using a needle with an obturator or stuffing-box, air can be aspirated from the outside.

There are rare instances of air embolism in which the lung, visceral pleura or pleural adhesions have not been traumatized by the needle and the only explanation to be given is a penetration of a systemic vein in the

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chest wall or parietal pleura anastomosing with a pulmonary vein through pleural adhesions or conveying air directly to the left heart through a patent foramen ovale. Brauer and Saugmann have reported one case each of sudden death occurring during a small pulmonary hemorrhage in which loss of blood was not sufficient and the aspiration of blood as shown at autopsy was inadequate to prove fatal. They concluded that death was the result of air embolism occurring during the simultaneous erosion of a vein and a bronchiole in a tuberculous process. While on the one hand our pneumothorax technique has been improved and the x-ray has enabled us to study our cases more accurately, thereby decreasing the incidence of air embolism, on the other hand our more refined methods of relaxing, selective, alternating and bilateral collapse of the lungs, have probably increased somewhat the hazards. We no longer hold a lung completely collapsed up against the mediastinum and far removed from harm's way, but attempt, after pleural adhesions have been loosened or stretched to a sufficient degree, to maintain only a partial collapse, often with the part of the lung little involved close to the chest wall. Pleural exudates are frequent and when large, mask the position of the compressed lung. As time goes on and the exudate persists, the lung may re-expand under the exudate or new vascular adhesions from which increase the danger of injury to a pulmonary or pleural vein unless extra precautions are taken. Because cases of air embolism are not reported in medical literature frequently enough and are often confused with so-called pleural shock, giving a dent, many employ artificial pneumothorax therapy more or less carelessly or at least without first exhausting every precautionary measure to prevent such a grave complication. It appears to be rather a common impression that as long as typical manometer readings are insisted upon and no air is introduced from the pneumothorax apparatus without satisfactory readings, the danger of air embolism is largely avoided. The greatest risk and the most difficult to prevent is the needling of the lung. This is the first, and often the only step necessary for the production of an air embolism. Few seem to realize how frequently they penetrate the lung with the pneumothorax needle, and if ninety-nine times out of a hundred they are fortunate enough not to have anything happen, they become indifferent and relax their vigilance.

Two groups of symptoms may occur during the induction of artificial pneumothorax, one is syncope or shock and the other those of focal lesions in the brain. The two groups may occur together and are confounded with one another. Certain writers, especially Italian and French, claim the existence of such symptoms as due to so-called pleural shock also referred to as pleural reflex, eclampsia or apoplexy, while many of the German authors object to the term pleural shock and believe that most cases classified in this category are mild cases of air embolism, although they state that injury to the pleura may give rise to shock such as occurs in injury to many organs; i. e., the stomach, peritoneum, testicles and kidneys.

From a study of our own cases we are of the opinion that pleural shock is a misleading term and often confused with mild cases of air embolism. On rare occasions patients become nervous and may faint during the induction of artificial pneumothorax. They may show vasomotor and circulatory disturbances and the symptoms which largely go with ordinary fainting, frequently seen as a psychic effect from the sight of blood or some minor operation. These symptoms are always transient, respond to simple treatment, and leave no after-effects. As a rule, cases of air embolism display, along with other symptoms, signs of focal lesions in the brain such as disturbances of vision and blindness, pupillary changes and ocular paralysis, local and general tonic and clonic muscular spasms, mono and hemiplegias, aphasia, etc., together with loss of consciousness, delirium, pallor, cyanosis, nausea and vomiting, sweating, circulatory and respiratory disturbances. That air embolism does occur in the coronary and the cerebral arteries has been proven by numerous experiments on animals in which air is introduced

into the pulmonary veins and carotid arteries. Not only can typical symptoms of air embolism be produced in this way, but the air bubbles can be seen in the retinal vessels before death and in the cerebral and coronary vessels at post mortem. Brandes reports a case in which an attempt was made to outline an empyema cavity with bismuth paste, following which procedure the patient had a spasm with deviation of the eyes and died after twenty-four hours. Necropsy revealed bismuth in the small vessels of the cerebral cortex of both hemispheres. Serial sections of the walls of the sinus through which the bismuth was injected showed that the bismuth had entered through venules in the granulation tissue lining the tract of the sinus and was thus transported to the vessels of the cerebral cortex by way of the left heart. On the other hand, Brauer, Schlaepfer and others have been unable to produce symptoms of pleural shock when they tested the normal pleura of animals by mechanical, chemical and other stimuli. Along with the improvement of pneumothorax technique with the view of reducing the occurrence of air embolism to a minimum, fewer cases of so-called pleural shock are being reported. This also would lead us to believe that this complication is frequently confused with air embolism. The reappearance of certain groups of symptoms at more than one filling, especially when an injury to the lung can be excluded, would indicate some other etiology than embolism. Forlanini has cited such occurrences in neurotic patients on account of which pneumothorax therapy had to be discontinued. The diagnosis of air embolism can, at times, be definitely made by finding air bubbles in the retinal vessels, but the proof of its existence by post mortem examination is often difficult. In fatal cases, as a rule, the patient dies before any gross alterations, or even microscopic changes occur in the brain. Unless the autopsy is done immediately after death, the air bubbles in the cerebral vessels may be absorbed, and even if present, their origin and time of happening can be questioned. Unless a special technique is used, air may enter the cerebral vessels during the autopsy. Some pathologists claim that gas can be normally present after death in the veins of the pia mater, but this is disputed.

The symptomatology of air embolism and the symptom-complex referred to in medical literature as pleural shock are so entangled that we can readily understand why so much confusion and difference of opinion exists. Most authors will report a large percentage of such accidents as due to pleural shock. All of our cases have been classified as air embolism which probably explains why we seem to have had an unusually high percentage of air embolism among our pneumothorax cases. In every one of our accidents there was good reason to expect air embolism. If the lung had not been punctured and in the absence of adhesions, the diagnosis of air embolism would have been very questionable.

The treatment of air embolism is principally one of prevention. As previously mentioned, the technique of artificial pneumothorax therapy has been devised and perfected largely with the idea of preventing this complication. One of the most emphasized rules is not to attempt to introduce air into the pleural sac before typical manometer readings are obtained. But this is not the most important factor in the prevention of air embolism. If the lung were never needled, air embolism would be one of the rarest of accidents. To minimize this danger, large, blunt needles are employed for the initial fill. Such a needle, if manipulated gently, will not traumatize or puncture the lung. Often, if the two surfaces of the pleura are adherent, the operator in his efforts to pierce the parietal pleura will force the needle through both layers into the lung parenchyma. However, the point of the needle being blunt will not be so apt to enter a bronchus or vein, merely pushing them aside as it penetrates. Some operators use a needle of fine calibre with a lateral opening, believing in this way that the danger of the air embolism is lessened for the reason that the opening produced by such a needle will readily close, or if air is aspirated it will be in such small quantities that fatal embolism will not result. This is not correct

as a fine needle, in addition to puncturing, can slit or tear a vein or bronchus. Brauer and his school advocate the open method for an initial fill, making a small incision down to the parietal pleura which then can be explored with the needle while it is in full view.

The use of oxygen gas instead of nitrogen or air has also been recommended as a precautionary measure, the idea being that oxygen is more readily absorbed, and if it enters a vessel in small quantities will disappear before any great damage can be done. Basing his opinion on the results of animal experiments, Brauer believes it matters little what kind of gas is used. Oxygen is more quickly absorbed from venous blood, but in pneumothorax therapy we deal only with air bubbles in arterial blood or blood in arterioles and capillaries. In a large percentage of air embolism cases the origin of the air is from an air space in the lung or pleura, or from the rubber manometer tube. It is not always introduced from the gas bottles. Research work has shown that air in the arterioles emulsifies and increases the viscosity of the blood and also induces a paralysis of the vessel wall in addition to a mechanical stoppage of the blood stream in front of and behind the bubble. The use of oxygen for initial fills may be of slight value theoretically, but is little advocated any more.

As another precautionary measure, especially during a primary fill where difficulty is being experienced in finding a pleural space, the lowering of the patient's head has been recommended with the idea of keeping the air out of the cerebral vessels. The buoyancy of the gas is probably of no importance because the force and rapidity of the blood stream would be expected to carry the bubbles directly to the brain. We have noticed that at the onset of air embolism symptoms the patient usually rises up and attempts to get off the table. It might be inferred from this that the cerebral symptoms occur as a result of this movement, but after observing a number of cases, I am convinced that this action on the part of the patient is one of terror occurring immediately after the air bubbles have reached the cerebral vessels, or have entered the coronary arteries. It is very doubtful if the position of the patient on the table has anything to do with the location of the air emboli. Naturally, it is always a good policy to have the patient in a recumbent position with the head fairly low if for no other reason than to prevent circulatory disturbances in the brain and syncope.

At this hospital every effort has been made to reduce accidents during pneumothorax treatment, and after experimenting with different makes of needles we have adopted one frequently used in Europe, which consists of a fairly sharp, short needle of large calibre which acts as a cannula for a second blunt needle of smaller calibre and with a lateral opening. The cannula needle is introduced perpendicularly through the chest wall until the pleura is reached. It is then withdrawn slightly and the inner needle gently pushed through the parietal pleura. Through this needle a manometer reading is obtained and air introduced. The use of this method, together with care regarding the manometer readings and never opening the connection with the air bottle until satisfactory readings are obtained, are about the only precautionary measures to be observed during the initial fill. After a space is once secured, the size and location of the air pocket is determined, if possible, by x-ray films taken in various positions and by fluoroscopic examinations before and after each fill. At the time of the fluoroscopic examination a drawing is made on a graphic chart, showing the position of the compressed lung and the size and location of the air space. The patient is then given a refill and another drawing made. Every effort is made to determine the existence and the location and size of the air space before the pneumothorax needle is inserted. If a pleural exudate obscures the position and degree of collapse, it should be removed and replaced by air, or x-ray plates should be taken with the patient lying on the good side so that the lateral margin of the lung is visible. Even with acceptable manometer indications, it is a good plan to introduce air slowly under a decidedly negative pressure and the patient must be warned

about coughing and deep breathing during the operation for obvious reasons.

The results from treatment after air embolism once occurs are not very encouraging. It is my impression that depending upon the extent and location of the air emboli, the patient recovers or dies regardless of treatment. However, we must do everything we can to combat symptoms as they arise and act quickly. Time should not be wasted in deciding the cause of the symptoms. The treatment of pleural shock is the same as that of air embolism. In severe cases, the patient usually has convulsions, becomes blind and unconscious with cessation of respiration and circulation. With the occurrence of these symptoms, immediately withdraw the needle, keep the patient in the recumbent position with the head lowered and give a heart stimulant such as a hypodermic of camphorated oil, ether, strophanthus, digitalis or caffeine. Adrenalin (1 c.c. of 1 in 1000 solution) should be given intravenously or directly into the heart muscle. Breathing must be re-established by other means than artificial respiration on account of the danger of pumping more air into the vessels. Rhythmic traction of the tongue and, if cyanosis continues, the giving of oxygen is to be recommended. The re-establishment of circulation in the region of the air embolism depends somewhat on the integrity of the heart and the strength of its beat. Heart stimulants are therefore important. Adrenalin by increasing the tonicity of the blood vessels may have some effect in dislodging the air bubbles. When returned to his room, the patient should be kept in a recumbent position and a special attendant or nurse employed to restrain his movements and keep him as quiet as possible.

At the Fitzsimons United States Army General Hospital, from January 1, 1920, to June 1, 1929, 472 tuberculous patients have successfully or otherwise received pneumothorax treatment, requiring approximately 12,700 pneumothorax operations. During this period we have had sixteen cases of air embolism with seven deaths. These include a case of pulmonary sarcoma in which an attempt was made, for diagnostic purposes, to aspirate a cyst-like tumor lying superficially in the lung. Another case was a patient under treatment for pulmonary tuberculosis with a lower lobe collapsed by pneumothorax. An upper-stage thoracoplasty was proposed to obliterate a large cavity at the apex. This patient died during the introduction of local anesthesia, which involved a blocking of the intercostal nerves near their exit from the spine. No autopsy was permitted, but it was the opinion of a board of medical officers appointed to investigate the cause of death that the fatal termination was either due to air embolism or to the accidental introduction of novocaine solution directly into a vein. The third patient had a 500 c.c. pulmonary hemorrhage and died in a few minutes during an initial attempt at introducing air. It was thought that death was due to asphyxia from aspiration of blood. The autopsy did not reveal much blood in the bronchial tree, but an extravasation of blood amid pleural adhesions and in the lung parenchyma where the needle entered. If the two latter cases are excluded, we have had fourteen true cases of air embolism, with five deaths, or thirteen cases in our pneumothorax work with four deaths. All our cases of air embolism had pleural adhesions, and there is very little doubt that this complication was due to the penetration of the lung or pleura by the pneumothorax needle, often regardless of whether or not any air was introduced from the apparatus. In eight patients, no air was turned in from the pneumothorax bottles. In three, no symptoms occurred until after the needle was withdrawn without injecting air, the probability being that the withdrawal of the needle left a communication between a pulmonary vein and a bronchus or alveolus, or between a vein and the pleural space. In one fatal case the autopsy revealed that the needle had torn a large dilated vein in a pleural adhesion which resulted in aspiration of air from the pleural cavity. The eye grounds were examined in seven cases and air bubbles found in the retinal vessels in only one. This patient died and the ophthalmoscopic examination was made immediately after death. Autopsies were performed on

five of the seven fatal cases. In two the brain was not removed, but in all the others air bubbles could be seen in the meningeal veins together with marked congestion of those not obstructed by air. In one, the meninges were edematous and one showed a localized area of softening. In all the site of the needle puncture could be found, three with some extravasation of blood in the traumatized area. The most interesting post mortem finding was an injury to a large dilated vein along a pleural adhesion in a case with fairly good collapse. This patient died in fifteen minutes and air bubbles were demonstrated in retinal vessels immediately after death. No pneumothorax space was secured in eight of the pneumothorax cases, the emboli developing during the initial attempt or after a series of unsuccessful efforts to find a free pleural space.

Ten of these cases have already been reported in a paper by Captains Reyer and Kohl, formerly on duty at this hospital,[1] and the following is the report of the additional cases which have occurred since the latter part of 1927:

CASE REPORTS

Case 11: R. B., aged forty, X-Lt., M. C., U. S. A., had been receiving pneumothorax for some time in the right chest with no appreciable air pocket seen on x-ray. He had symptomatically much improved and received air every week. High readings were obtained but fair amounts of air were injected. Several times he felt a little faint after pneumothorax, but he recovered at once. On September 6, 1927, 425 c.c. air was given in about the seventh interspace at the post axillary line near the point where he generally received it. The pressure went from minus 2 plus 3 to plus 4 plus 6. He complained after the needle was removed of feeling numb in the right side. When he came to rise, he said that he could not get up. The head was low during the entire operation. He became suddenly cyanotic and dyspneic with pulse slow and irregular. His head was drawn off the bed toward the floor and he vomited. The breathing became stertorous and almost stopped. Artificial respiration was induced and the heart stimulated with a barrel of adrenalin, 1/30 gr. strychnine and an ampule of camphorated oil. The pupils were of medium size, equal and apparently fixed; later they became larger. The patient was placed in bed with the foot raised. The right side was now spastic and the left flaccid; the pulse much better. In about forty-five minutes the patient regained consciousness enough to answer questions. He was irritable and very restless, trying to get up and moving all the extremities. He said that he was in trouble and that he felt very tired. He was confused; vomited several times. He was somewhat stuporous but restless; said that he could see all right but the eyes were rather staring. Examination of the eye ground showed no evidence of air. Four hours later the patient was clear mentally; he talked and answered questions intelligently; he could see and stated that when the accident occurred he could not see. At this time there was no apparent paralysis, but there was a twitching of the right shoulder and arm and unsteadiness in the movements of the left. When movement returned it started as jerking movements—right leg—left leg—body movements—left arm and right arm. The neck was stiff and the head drawn to the right. Six hours later the patient was perfectly clear mentally but could not even distinguish light. There was a Jacksonian convulsion of the left arm and hand and twitching of the muscles of the left neck and shoulder. On September 7, 1927, he vomited several times during the night and slept but little under luminal and morphine. The next morning he was much quieter; cheerful, could distinguish light and recognized the ward officer and the nurse. The left hand was still a little spastic. The patient recovered on September 8.

Case 12: J. S., aged thirty-one, X-Pvt., 352 Infantry, had been receiving a left pneumothorax for two years. He returned to the hospital and was found to be nearly re-expanded on the left side. On November 22, 1927, upon attempting a refill, the needle entered the lung and the patient coughed up a small amount of blood. The needle was withdrawn. The patient sat up and started to get off the table. The right arm and the left side of the face were contracted, a mild clonic spasm occurred and the patient was immediately inverted. He became unconscious and remained so for thirty minutes. He had a succession of tonic and clonic spasms with a persistent right sided spastic hemiplegia. The patient's condition improved slowly and in two hours he was able to speak a few words and could recognize attendants. After consciousness returned vision was normal as far as could be determined. The patient did not remember any visual disturbance or any other occurrence during the attack. At 4:00 p. m. of the same day, the pneumothorax having been given at 10:30 a. m., the patient was quite comfortable and seemed normal in all respects save a numbness of the right arm and leg, a headache and feeling of weakness. During the height of the attack the pupils were dilated and irregular; the right side was very spastic, the left side of the face contracted and the tongue deviated to the

[1]Reyer and Kohl: "Air embolism complicating thoracic surgery," Journal A. M. A., November 13, 1926.

left; the pulse was very slow and sustained; the breathing slow and shallow. Complete recovery occurred in eight hours.

Case 13: L. M., aged twenty-seven, X-Pvt., 30th Infantry, received an initial fill on March 25, 1928. This particular attempt was the last of several unsuccessful ones to secure a reading. Fluctuation in the manometer could not be secured and no air was given. The patient was then allowed to rise from the table with instructions to return to his bed. The operator had turned from the table and was in the process of removing his gloves. A moment later he glanced around, the patient was still standing by the table but swaying. He started to slump to the floor and it was noticed that his face and hands were cyanotic. He was caught and lifted to the table; his face, neck, chest and hands were cyanotic; the respiration irregular and stertorous; the musculature, at first convulsive, tonic, rapidly became clonic and more flaccid; respiration ceased to be perceptible; the pulse was weak and irregular and running; the pupils were dilated; saliva drooled from the mouth. The table was tilted at an angle of about sixty degrees and assistants supported the patient in this position. Hot water bottles were placed at the feet. Artificial respiration was administered from the first until his complete recovery on the table. Two c.c. of adrenalin were given intravenously in the right basilic vein. The patient was unconscious from the time he first started to fall until his recovery on the table about ten minutes later. He had no recollection, according to his statement, of anything that occurred in the meantime. After his recovery had once started it was rapid and complete; the breathing became deep, regular and quiet; his pulse rapidly returned to normal; the cyanosis rapidly disappeared and with it the profuse bodily perspiration. The patient was returned to his bed by the orderlies, kept in an elevated foot position until the next day and ordered not to move. He made a complete recovery in twenty-four hours.

Case 14: O. M., aged thirty-eight, ex-sergeant, on November 21, 1928, after a third attempt at artificial pneumothorax, suddenly showed severe signs of air embolism: extreme pallor, cold, clammy skin, loss of consciousness, no radial pulse and cessation of respiration. In treatment the head was lowered, artificial respiration given, 7.5 mm. of adrenalin injected directly into the cardia. The patient resumed breathing shortly and regained consciousness in a few minutes. He could not see anything. The circulation gradually improved and his general condition also. The vision cleared a trifle one hour later. Examination of the fundus one hour later showed no air. The patient recovered completely in twenty-four hours.

Case 15: M. H., aged thirty-seven, ex-lieutenant, on January 15, 1929, underwent an initial pneumothorax puncture, made rather high up in the axilla. A reading of plus 0.5 minus 1.5 was obtained. The operator had turned in less than 50 c.c. of air when the patient started to cough, hemorrhaged about a pint, became extremely dyspneic and much cyanosed. He was stood on his head, given stimulation, nitroglycerine, and later adrenalin in several doses. The pulse was rapid but of fair volume. Dyspnea was extreme. There was evidence of blood throughout both lungs; blood ran from the mouth. Artificial respiration was given. Thinking of a spontaneous pneumothorax complication, severe hemorrhage or perhaps a rupture of a superficial cavity, the needle was inserted to take a reading. Blood and air were ejected from the needle and no reading could be taken. There was no convulsion indicating air embolism and for about ten minutes the patient seemed to understand questions. He died a respiratory death. Autopsy showed extravasation of blood at the site of the needle puncture in the lung. There was very little blood in the bronchial tree.

Case 16: C. L., aged thirty-four, retired captain, was an old pneumothorax case with adhesions and no x-ray evidence of pneumothorax, but who always showed logical readings and no obstacle to air. At about 11:00 a. m. on January 15, 1929, he was given air, about 100 c. c., after an initial reading of plus 3 minus 4.5. While the needle was still in the chest and as the reading was about to be taken the left arm was drawn strongly upward and the patient became unconscious. Deviation of the eyes to the left followed and immediate tremendous dyspnea and cyanosis. The head was immediately lowered to the floor and he was given repeated doses of adrenalin. The pulse was very rapid and thready, almost indistinguishable. Gradually the suggilations in the back and the marked cyanosis of the arms cleared and the patient was placed in bed with his feet elevated. Consciousness returned in about fifteen minutes and the patient was able to talk and recognized the doctor. There was no paralysis. The pulse was 160. He received ¼ gr. of morphine and 1/50 gr. of atropine; later digitalin 1/50 gr. He was nervous, restless, moving about in the bed. At 2:00 p. m. he still showed considerable cyanosis; his pulse remained 160, however he was not so confused. Evidently he had a dilated right heart from the morning's tremendous strain. He received digitalis 2/50 gr. and tincture of digitalis 3 c. c., this latter to be repeated every three hours until three doses had been taken. The patient was in bad shape at midnight. There were small convulsive movements, shuddering, and high temperature. He was stimulated vigorously. On January 16, at 8:00 a. m., he was much confused; the pupils were no longer dilated; the head was pulled to the left; the eyes turned to the left; the right arm weak, apparently partially paralyzed; the right side of the face smooth. The patient could move both legs. The pulse was 126. He urinated freely during the night, and took liquids. The patient had five convulsions in the afternoon, all left-sided ex-

cept the last three which showed movement of head and eyes to the right. The right arm and leg became paralyzed. At noon it looked as though he might clear up, but after later convulsions he was revived with more difficulty by artificial respiration and died at 5:25 p. m.

Summary

The object of this paper is to emphasize the risk of introducing a needle into a diseased lung. The confusing of mild and nonfatal cases of air embolism with so-called "pleural shock" tends to give a false impression concerning the infrequency and seriousness of this complication. From our experience we believe that the symptom-complex called "pleural shock" is rare and such symptoms as blurred vision, blindness, pupillary change and ocular paralysis, pallor, cyanosis, loss of consciousness, convulsions, mono and hemiplegias, delirium, nausea, vomiting, etc., occurring during an attempt to introduce air into the pleural sac, are due to air embolism. We must fully appreciate the gravity of such symptoms just enumerated, take every precaution to prevent them, and, when they once occur, act quickly. During an initial fill, in refills where adhesions are present and very little free pleural space has been obtained, or the formation of an exudate prevents a definite location of the lung markings, extra precaution should be taken to avoid a lung puncture. Our report of sixteen cases of air embolism, two doubtful, might appear exceptionally high, but no comparison can be made with the statistics of others due to the difficulty of separating cases of pleural shock from those of air embolism. We have probably classified some cases as air embolism which others would diagnose as pleural shock.

Treatment is largely a matter of prevention, i. e., the use of careful technique and of special needles for primary fills or where pleural adhesions or fluid is present, fluoroscopic examinations before and after pneumothorax treatment, and, if necessary, x-ray plates taken with the patient in various positions to establish, if possible, the presence or absence and the size and location of a pleural air space. Everyone familiar with pneumothorax work knows of these prophylactic measures, but, owing to the infrequency of air embolism, carelessness may creep in and details of prevention be neglected. The behavior of the manometer is at times misleading. In one of our fatal cases, it was proven by autopsy that no pleural space existed, although the surgeon was under the impression from manometer readings that he was introducing at each treatment from 200 to 500 c. c. of air into a pleural space. In order to orient ourselves, it is better to insert the pneumothorax needle perpendicularly through the chest wall and not obliquely for primary fills or in the presence of pleural adhesions. A large calibre needle should be used, acting as a cannula for a blunt trocar, the trocar being hollow and containing an opening laterally near its end. The needle is forced through the chest wall until the resistance of the parietal pleura is felt, then slightly withdrawn and the end of the trocar, with extreme gentleness, pushed into the pleural sac.

There is a prescribed treatment for air embolism which should be quickly applied, but there seems to be a feeling of helplessness when symptoms once appear, and deaths often occur which are among the most tragic witnessed in the the practice of medicine and surgery.

DISCUSSION

S. Simon, Denver: Air embolism has been a frequent subject of discussion among those of us who perform artificial pneumothorax in the treatment of pulmonary tuberculosis. For the past twenty years many deaths have occurred in the administration of artificial pneumothorax which were attributed to various causes, pleural shock being probably more frequently assigned. Most operators, however, now believe, as Colonel Bruns states, that these deaths are due rather to embolism than to pleural shock. I have had in my experience a number of accidents with only one fatality. Death occurred in a very few minutes during a refill in a patient with pleural adhesions, similar to those described by Colonel Bruns. I am in accord with Colonel Bruns, that where patients have extensive pleural adhesions it is not only dangerous to persist in the compression therapy, but what little compression is obtained rarely proves of any benefit. In one patient with adhesions convulsions occurred followed by hemiplegia, the hemiplegia disappeared in less than twenty-four hours. I am satisfied that this was also a case of embolism. There is nothing in medicine that is more terrifying to the physician than to have an occurrence of this kind while giving compression therapy. We, however, must face the occasional possibility of an accident since there is no measure that has been advanced during the past twenty years in the treatment of tuberculosis that is so advantageous to the patient, although accompanied by some risk, as the

use of artificial pneumothorax. It is not necessary to introduce air at all to have an accident. I had a case in which while injecting the local anesthetic (novocaine) the patient went into collapse. This, however, was not due to an embolus, the anesthetic needle had punctured a bleb upon the surface of the lung, and an accidental pneumothorax occurred, which caused the lung to collapse. As soon as the patient had sufficiently recovered he was fluoroscoped, and the lung was seen to be almost completely collapsed. A physician may perform many initial pneumothoraces, and numerous subsequent refills over a long period of years without an accident. It was after an experience of over twelve years with artificial pneumothorax that I had my first accident, and then for a time they came in rapid succession. Let me repeat, that the accidents nearly always occur in cases with pleural adhesions. Pleural shock, to my notion, is rare, and when it occurs I think it is in a patient who is neurotic.

I. D. Bronfin, Denver: The last word on the mechanism of air embolism has evidently not yet been said. It is very difficult to explain the cause and mechanism of air embolus, just as it is difficult for the surgeon to explain why a hundred major surgical cases, or, for that matter, five hundred, will have an uneventful recovery, and one case, for apparently unknown reasons, will lapse into a coma and die within twelve hours following the operation. I have now in mind two such cases, one a young woman who had a plastic pelvic operation and the other a man who was operated for stone in the kidney. Death occurred in both cases in about twenty-four hours after the operation. At autopsy nothing definite was discovered to account for death. Emboli were suspected but not demonstrated.

The demonstration of an air embolus is even more difficult. It is surprising that this accident does not occur more often, for we know that in the majority of cases either the infiltrating needle or the pneumothorax needle proper often penetrates the lung. It must be remembered that the pleural space is actually only a potential space. There are a very few experienced pneumothorax operators who would venture to assert that they have not on more than one occasion punctured the lung while attempting to induce artificial pneumothorax or even at refills in certain difficult cases. It is fortunate that in most instances the needle punctures a relatively healthy portion of the lung, for if it were to puncture a tubercle or emphysematous bleb, a cavity or a fibrocaseous area, the incidence of spontaneous pneumothorax, empyema and air embolus would be very great.

I am somewhat in doubt as to whether there is such a thing as pleural shock. I have never seen a case of pleural shock. I think in practically all of those cases varying amounts of air find their way into the circulation. The outcome depends a great deal upon two factors: first, on the amount of air that enters the circulation; and, second, upon the integrity of the heart. Rapid circulatory stimulants are of great help. The possibility of such an accident is so strongly impressed on our staff that no one dares administer pneumothorax without having in the room the "emergency" tray. Yet, in a period of nearly ten years of pneumothorax practice, I have never seen the occurrence of air embolus where a large and free pneumothorax space was present.

Colonel Bruns speaks about preventing pleural shock by using local anesthesia. Some pneumothorax operators on the Continent and even in this country do not use novocaine for refills. I have known patients who objected to the use of novocaine for refills. We always use novocaine, simply because of the possibility of the occurrence of so-called pleural shock; but I have known many patients who had pneumothorax refills repeatedly without any local anesthesia and have never experienced any ill effects. I do not hold this out as proof that local anesthesia is unnecessary, but rather to stress that in my opinion all manifestations of pleural shock are due to air emboli, and that the only preventive against such an accident is not to "push" air when the operator is in doubt as to whether he is in a free pleural space. Again I emphasize that air embolus rarely, if ever, occurs when a free pneumothorax space exists.

Maurice Katzman, Denver: I would like to report a case of pneumothorax which I had to discontinue on account of what I thought to be pleural shock. This patient had pneumothorax for several years with some adhesions. For the past three refills, the patient had had symptoms which I could not explain. Right after, or sometimes during, the refill, the patient would relax and turn slightly pale. The first occurrence I thought was neurotic. I continued the pneumothorax, because I thought the readings were good. The last time I stopped the pneumothorax and took the pulse and found it to be somewhere around forty, and discontinued the pneumothorax permanently. In this case I think it was vagus stimulation that caused the symptoms, and I think this was a true case of pleural shock.

LIPIODOL; ITS PLACE IN THE MODERN DIAGNOSIS OF NASAL SINUS PATHOLOGY*

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Operative surgery on any part of the human body is, or should be, undertaken only after a most careful and searching diagnosis. There are times when a diagnosis before operation cannot be made, but this fact in no way excuses the surgeon from attempting, by all known means, to determine the change from the normal before exploration is done. For years the eye, ear, nose and throat specialist has labored diligently to arrive at a correct conclusion with regard to sinus pathology before operation, and with some measure of success. Transillumination, puncture and washing, suction, culture of the sinus contents, x-ray films, with or with-

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cut injection of opaque media, have all been utilized. There has been much criticism of the specialist for his apparent willingness to operate on the nasal sinuses, and some of this criticism has been justified. It has been exceedingly difficult to withstand the pressure of the diagnostician, who having eliminated the tonsils, teeth, appendix, etc., turns to the sinuses as a probable portal of entry for bacteria and their toxins, and urges that corrective surgery be done to aid in eliminating remote evidences of chronic tissue changes. The purpose of this paper is to present a comparatively new method of diagnosis in nasal sinus disease, one that contributes to accuracy, and when used, makes possible, and compels a conservative surgical attitude in a large percentage of cases.

In 1922, Sickard and Forestier used a solution of iodine in oil as a contrast media in making x-ray of a part. Since that time various preparations have been produced for general use, among them Iodipin, Lipoiodin, Contrastol, Brominized oil for the patient with an idiosynocrasy to Iodine, and Lipiodol. Hyperthyroidism and susceptibility to iodine, have been the two contrainidications to the use of Iodized oil. Since these various oils have been available experimenters have used two means of placing them in the nasal sinuses previous to x-ray. Injection was used first, and still gives the maximum of knowledge with the minimum x-ray exposure. In 1926, Dr. Proetz of St. Louis, described what he termed Displacement Irrigation of the nasal sinuses. Injection is used principally at this time to determine the character and extent of a filling defect in the maxillary sinus. The head is turned toward the affected side, at a forty-five degree angle, the oil is introduced through a suitable needle, and x-ray films are made in any position desired. The displacement method of Proetz means the exhaustion of air from a sinus and its replacement with a fluid which takes the place of the partial vacuum created by intermittent suction. Gentle suction is used and each alternation introduces a drop of overlying fluid, in this instance Lipiodol. The head must be in proper position for the oil to cover the ostia of the sinuses to be filled.

Two positions are used: First the supine, for posteror ethmoids, some anterior ethmoids and sphenoid. If care is used in placing the head, usually enough oil enters the anterior ethmoid and maxillary sinuses for diagnostic purposes. Second, the prone position is used for filling the frontal sinus. The head is placed face down on a table until the nasofrontal suture and upper incisors are in the same horizontal plane. The Lipiodol is warmed and introduced into one nostril with a closely fitting syringe. The syringe is withdrawn and the nostril closed by pressure from a finger. Suction is made intermittently to the other nostril until the desired amount of oil is in the sinus. The frontal sinus is difficult to fill because of the long narrow outlet from which air is not easily displaced. In the supine position, the patient is placed on the back with the head extended until the tip of the chin and external auditory meatus are in the same vertical plane. Lipiodol, warmed, is now introduced into each nostril. Gentle suction is applied to one nostril, the other being closed by finger pressure and the patient is instructed to speak the letter "K," to close the openings between the nose and pharynx. A bubble of air from each sinus escapes and when suction is released the small vacuum created is restored by a drop of the overlying Lipiodol. Eight to twelve alternations are sufficient. The patient is returned to the erect position, is cautioned not to blow, and is permitted to sit for a few minutes to enable the oil outside the sinuses to flow to the floor of the nose. The excess is wiped away with a cotton applicator before the x-ray films are made. Before the oil is placed in the nose, no shrinkage is made, for we are trying to determine the exact condition of the sinuses at that time. Lipiodol is diluted with an equal quantity of olive oil. Prepared in this way, it has about the same viscosity as the normal sinus exudates. It is introduced in 2 c.c. amounts to avoid overfilling, and in all 4 c.c. are used in each side. I strongly advise the use of Lipiodol from ampules prepared by the maker, for in this

way there is the minimum chance for free iodine to appear, and therefore little or no gastric irritation.

Conservative treatment of the nasal sinuses necessitates early diagnosis. The normal upright position of the body predisposes the mucous membranes of the floor of each sinus to the first pathologic change. X-ray films are taken with the beam horizontal and the head in any one of the positions desired. I take four films, three posterior-anterior, and one lateral. To show emptying of the sinuses, other films are made at seventy-two to ninety-six hours. For the average head I use a 4½-inch spark gap (70 to 80 K. V.) 28-inch distance, current of 20 milliamperes, and 6½ to 8½ seconds exposure. This is for the posterior-anterior view. For the lateral view I reduce the milliamperes to 5. A Bucky diaphragm is part of the x-ray equipment, mounted on my specially made upright, adjustable stand. The head should be braced to avoid movement during the rather long exposure.

In the Proetz Displacement method, all cells that are open can be filled, and having been filled, show with what readiness they empty. This indicates the type of treatment. It localizes the diseased cells as well as the normal ones. If the head is in the proper position, and the oil in proper quantity submerging the ostia of the various cells, the method has a high degree of accuracy in demonstrating the ability of the sinuses to fill. Filling under mild suction means normal drainage under average good conditions. Marked hyperplasias, cysts and polyps are clearly outlined. After the correction of septal and turbinal irregularities, cells that previously did not fill, often show now that they contain Lipiodol. Sinuses are not to be washed before Lipiodol is introduced, for the oil, in the presence of water, forms in globules, and does not give an accurate picture.

Conclusions

1. Surgery on the nasal sinuses is not to be done until after a most searching and careful diagnosis has been made.

2. In a large percentage of cases, such surgical diagnosis need not even be attempted until nasal ventilation and drainage have been restored and the nose and throat observed under treatment over a period of months, especially the hot months, when the air is free from pathogenic bacteria, and near the body temperature, requiring very little or no vasodilator action on the part of the turbinates and when living conditions are at their best, and the body elimination is at its normal maximum.

3. Lipiodol, properly placed in the sinuses, properly rayed, and properly interpreted, adds greatly to accuracy in making a surgical diagnosis of nasal sinus disease.

BIBLIOGRAPHY

Proetz, Arthur W.: Displacement Irrigation of the Nasal Sinuses, Archives of Otolaryngology, July, 1926.

DISCUSSION

Kenneth D. A. Allen: It is a source of considerable gratification to me to see on the program, a paper on the subject of lipiodol instillation into the nasal accessory sinuses, as a method of examination. This method of examining the sinuses is deserving of more attention than we have given it.

I had the privilege of working with Dr. Proetz, whose method Dr. Whitaker mentioned, for two weeks, in this kind of work, and I learned to appreciate and to believe in his work and to have confidence in him.

I would like to discuss Dr. Whitaker's paper from three points of view. The first point is the x-ray technique when lipiodol is used. It is not a hard technique at all; in fact, if anything, the erect posture in examination of the sinuses is easier than the horizontal or the prone posture. For those of you who are used to examining the patient prone, all you have to do is to have the patient sit up, arrange your plates in the perpendicular, your x-ray in the horizontal, and use exactly the same technique as you do in the prone posture. It is not necessary, in my opinion, to have a Bucky diaphragm. The secondary radiation which the Bucky diaphragm cuts off can largely be cut off by a small cone, and besides in plates made without the Bucky the sinuses are closer to the plate than when the Bucky diaphragm is used.

The second point I wish to emphasize, and Dr. Whitaker has brought it out, is that the use of lipiodol is an aid to diagnosis. We can outline polyps, cysts, and we can certainly show the hyperplastic mucous membrane much more definitely than in the routine method of x-ray examination.

The third point I wish to talk on and stress more than the others is the identification of cells. When I was working with Dr. Proetz, he suggested to me that a method be evolved by which the various sinus cells can be identified, not only in each particular case, but also to establish the position of cells in all of the average cases. I believe I shall have time to show this method with just one slide.

The whole area within the square (Fig. 1) represents the front of a view box. The three diagrams are tracings of actual x-ray plates of the sinuses containing lipiodol in the three positions which I feel are the fundamental positions for the

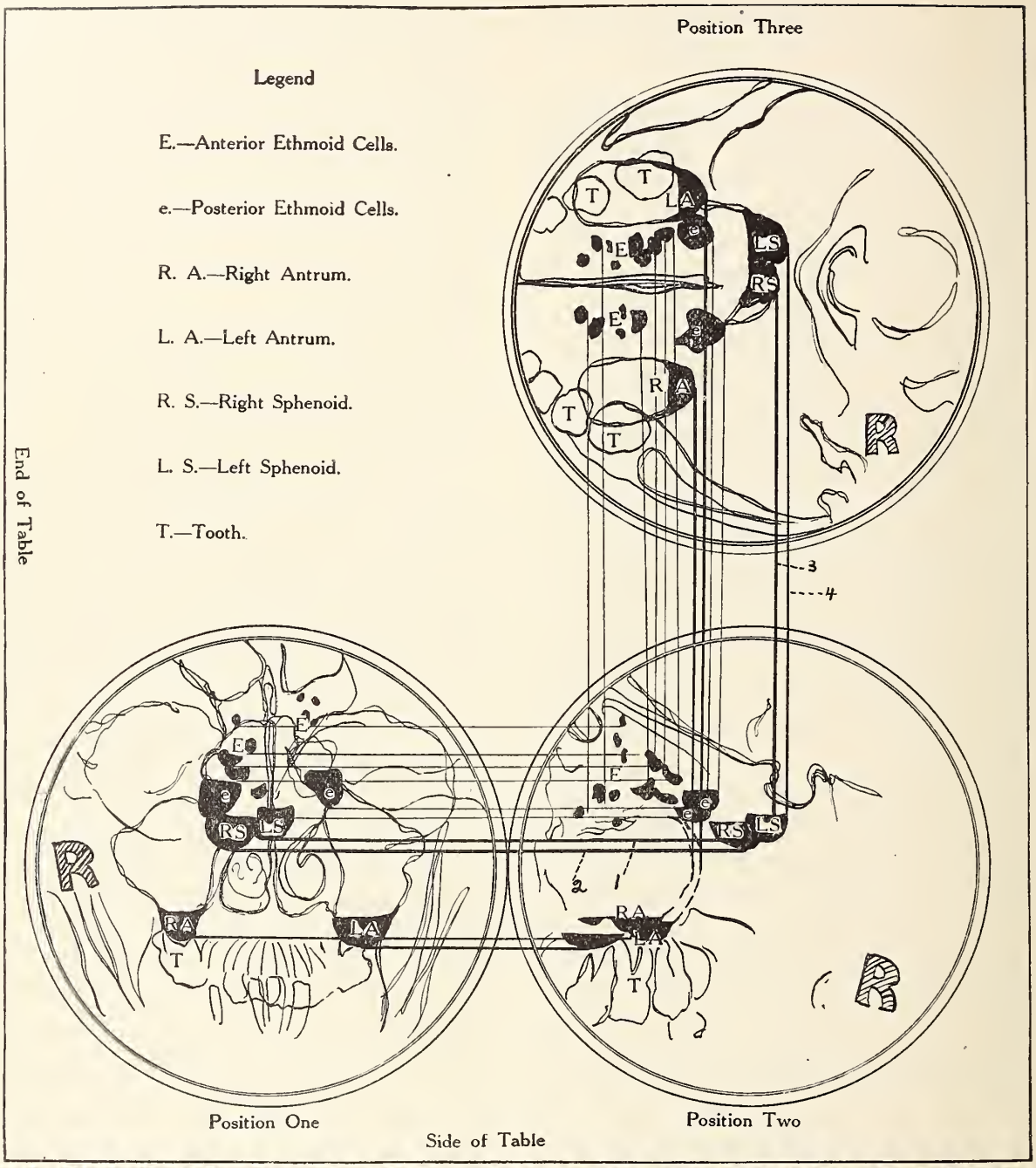


Fig. 1. Illustration taken from "Sinus Radiography for the Proetz Method of Sinus Study," K. D. A. Allen Annals of Otology, Rhinology and Laryngology, Dec., 1928, Vol. xxxvi, No. 4, pp. 1212-22. The lines denote the edge of T square while being used for identification of various cells. See text.

lipiodol examination. Position 1 is the regular frontal view, and it is placed on the view box so that the crista galli and nasal septum are in line and parallel with the end of a table containing the view box with its illuminated surface flush with the surface of the table and square with ends and sides. Position 2 is the lateral view, very similar to the ones Dr. Whitaker has shown us, and it is placed so that a line running from the external canthus to the external auditory meatus assumes the same angle to the bottom of the view box that the same line on the patient assumed to the floor; namely, 23 degrees, the external canthus extremity of the line being the higher. This position, maintained in the lateral and anteroposterior view, keeps the lipiodol in the posterior extremity as well as on the sinus floor. Position 3 is the reverse of the classical sphenoid view. The patient's head is tipped back with the crown of the head against the screen, the central x-ray passing under the chin and then through the sphenoid. The diagram, position 3, shows the placing of the plate in this position. The septum or mid-portion of the hard palate should run parallel to the side of the view box. We now have our films in the position to identify the sinus cells. This is the way it is done: We take landmarks, which are undoubted landmarks. The two sphenoid sinuses are undoubted landmarks. The antero-posterior view sphencid sinuses and the later view sphenoid sinuses are put exactly on a line which runs parallel to the side of the table (lines 1 and 2, Fig. 7). We then line position 3 sphenoid sinuses with position 2 (lines 3 and 4, Fig. 2). We now have the films placed so that if we can pick out any one cell we wish to identify we can run a T-square on

the edge of the table along a line from that cell to another film to show us in the other film which cell it is.

Frank R. Spencer, Boulder: I have enjoyed Dr. Whitaker's talk very much, and I believe he has brought out many interesting and important points.

There are a few things which are confusing, even with the most advanced methods of diagnosis of sinus disease. Sometimes we are dealing with a very small maxillary sinus with thick, bony walls. Add to this a thickening of the mucous membrane, and it is sometimes difficult to be sure of the pathological condition. An x-ray examination may show more disease than is really present. When lipiodol is injected into the sinuses, the difference in the radio opaque substance is not as great as you expect. More confusion may arise in diagnosis as a result. These cases require more study and care than the others.

Proetz's method offers this advantage over any method of injection of radio opaque substance into the sinuses, in that you do not have to make a puncture. It is relatively easy and relatively safe to introduce medicine into the maxillary sinuses by needle puncture. It is not so easy with some of the others. It offers the easiest method of introducing lipiodol into the ethmoidal cells and sphenoidal sinuses. I have had the pleasure of seeing a number of Proetz's films. L. W. Dean has emphasized the importance of ephedrin and protargol with summer weather in curing sinus disease in small children and infants. He has done a great deal of work, especially in children, and has written a great deal on this subject.

Dr. Whitaker emphasizes the importance of conservatism before any surgery is resorted to, because surgery does not always cure sinus disease. He mentioned the fact that some of the cells do not fill. We have to bear in mind that Proetz does not always succeed in filling a normal cell, but he usually does, because he is very expert.

Good naturedly, I am afraid I will have to disagree with Dr. Whitaker about ichthyol. Ichthyol is not in the United States Pharmacopeia. Very few people are using it. A few very good men use ichthyol. but it is not a standard remedy.

Robert Levy, Denver: I have heard two papers recently which show the public trend of the times, one in San Francisco by Dr. Proetz, whose paper was, in a way, quoted and sent broadcast through the United Press, and in spite of this undesirable notoriety, it was well worthwhile and everybody read it. I think it had a good influence on the people generally who have been disturbed about their sinuses, and on some doctors, too, who were pretty radical about the whole sinus problem. There exists much uncertainty regarding this question because its limitations have not been recognized and because of inability to make correct diagnoses.

The second paper, by Dr. Whitaker, today has sounded a conservative note against operations, and has stressed the matter of diagnosis. One may make an x-ray diagnosis, but the interpretation of our findings from this alone is often erroneous.

What we need is two things: we need a plate diagnosis, and a clinical diagnosis depending on the objective and subjective findings. I contend that there is nothing more difficult than to get a satisfactory x-ray film of the nasal maxillary sinuses. I was specially impressed with this after seeing and hearing Dr. Law, who is perhaps one of the best authorities in the United States on x-rays of the nasal accessory cavities.. Even Dr. Law's plates were not always as clear and as easy of interpretation as one might desire. After all, the impression made upon me by exhibition of Dr. Law's plates was this: that it requires a great deal of mechanical skill as well as a great deal of anatomical knowledge, to be able to take x-ray plates of the paranasal sinuses. In addition a knowledge of photography which Dr. Whitaker seems to possess, and a very few of us have, is essential.

I am frank to say that these plates of Dr. Whitaker's, which I have seen before, are by all means the most beautiful that I have ever seen. I have seen the plates made by Logan Turner of Edingburgh by Kuttner of Berlin, by many of the best men, but these plates are unquestionably the finest from an anatomical standpoint, and from an artistic and mechanical standpoint as well. Now, plates of that kind are worthwhile; but their worth is in relation to the clinical and operative findings and to the subsequent observation of the patient. It is necessary, in my opinion, to have a very close contact between the x-ray operator and the practitioner, and until we get to where we are able to reconcile the findings in an x-ray plate, and the findings clinically, pre-operative and post-operative, we shall be in doubt as to the exact value of the laboratory findings. Until then, we shall still be in the dark both as to diagnosis and as to treatment, whether conservative or radical operative treatment. The trend of the times emphasizes conservation.

T. E. Carmody, Denver: I was very sorry not to have heard the first part of Dr. Whitaker's paper with regard to lipiodol, and what we are able to do with lipiodol in outlining sinus and bronchiectatic cavities. The injection by perforation, as Dr. Spencer has said, frequently causes damage. The Proetz method is probably the best method of outlining these sinuses, and Dr. Whitaker's demonstration has shown that very clearly. The method that he has described to you has been very clearly defined, so that there is no necessity of going into that. There is another point, however, that must be brought out, and that relates to the disease in the sinus itself. We have as a rule plenty of disease around the ostium, and that is true of the maxillary sinuses, such as the ethmoids, and it may interfere with the entrance of the fluid into the sinuses, and as Dr. Whitaker has shown, it does interfere with emptying of the sinuses. But that is not the whole story. We must take our clinical appearances in many of these cases. Even though they may keep well, you may have polypoid thickening. If we succeed in aspirating all the air from the sinuses, we provide for the entrance of the fluid, provided it is warm enough to liquefy perfectly so as to enter the ostium.

Now, Dr. Whitaker calls attention, very properly, to conservatism, as did the paper which Dr. Proetz read in San Francisco, and the paper on physiology of the sinuses, in Salt Lake, that Dr. Levy speaks of. These papers call attention to the function of the sinuses, and he knows just as much about it as any of us, and not any more, and most of us do not know very much about the physiology of the sinuses. We think we do, but we don't; nevertheless we can tell when these sinuses are not functioning properly, and if these sinuses have become diseased to any great extent, conservative treatment is going to do no good. We have to do something radical, and we have to be conservatively radical. We do not want to be too radical, but we have to be radical

enough to open these sinuses when it is necessary, and if we find plenty of diseased membrane, we shall have to open them. Dr. Whitaker has shown the moving of the lipiodol that has been injected, so that we have to take that into consideration, and we have to take our own clinical experience into consideration, and if we have not had plenty of that, God help us.

Charles N. Meader, Denver: I am perhaps out of place in this discussion, not being an otolaryngologist; yet I think the bearing of sinus infections on general medical conditions needs emphasis.

I am entirely sure that Dr. Whitaker is right in his conservative attitude. There is as good reason to believe that many patients with mild, chronic sinusitis may secure an "arrest" under conservative treatment as that patients with pulmonary tuberculosis may become arrested without resort to radical procedures. The same proviso holds in both; that conservative treatment be carried out thoroughly and patiently.

I should like to emphasize that the decision whether or not relatively slight pathological changes demonstrated in paranasal sinuses demand treatment, depends quite as much—perhaps more—on the general condition of the patient as upon the local findings. This is not an unfamiliar principle; it is applied to questionable foci in tonsils and teeth. In a patient presenting manifest evidence of toxic absorption, in whom other foci can be ruled out, it should be possible to secure, without protest, interested treatment of a mild sinus lesion. Standards of what constitutes cause for treatment must undergo the same changes which fifty years have brought in our conception of what constitutes an "early" lesion of pulmonary tuberculosis, and of its need for careful treatment.

Finally, sight must not be lost of the fact that the damage which a focal infection does the patient depends relatively little upon its size and location, and by no means entirely on the question of drainage. It depends far more upon the virulence of the invading organism and the patient's specific resistance to it. Examples of extensive local damage with slight systematic manifestations, and, conversely, of marked peripheral symptoms or lesions, relieved by the removal of apparently trivial local foci, are too common to require emphasis. The patient's condition as a whole, rather than merely the local lesion, should be kept constantly in mind.

Dr. Whitaker (closing): My thanks to the gentlemen for the discussion of this paper. It is my firm belief that ichthyol has been of help to me in the treatment of congestion in the nose. Dr. Levy has spoken kind words about my x-ray films of the nasal sinuses. Years ago it was my privilege to have professional photographic training and this has made it relatively easy for me to bring the quality of the negative to a high state of perfection.

Answering Dr. Meader, it is my firm belief that the qualified nose and throat specialists are exceedingly patient; in fact, they are willing to go the extreme limit, in exercising patience in studying the nose and nasal sinuses before subjecting the patient to operation. This plan I have followed for years, believing it to be a serious mistake to operate on the nasal sinuses except when the indications are clear and definite.

It must be understood that the x-ray of the sinuses, with or without lipiodol, is only confirmatory to clinical findings. Lipiodol in the sinuses makes for more accurate interpretation of x-ray films of the head.

If I may digress for a moment, let me say that the most crying need today, with regard to the sinuses, is for the specialist to see the patients with deflected and thickened nasal septums, interfering with ventilation and drainage, between the sixteenth and twenty-fifth years. At this age, it is safe to correct the septal deformity and fracture the middle turbinates back to their normal positions, thus uncovering the openings of the anterior sinuses, permitting air to enter and mucus to flow out into the nose. Please recall that the adult nose secretes approximately one pint of mucus in twenty-four hours, and this is evaporated and carried into the lungs as moist air. Under normal conditions, the nose is in a semi-dry state and free from bacteria except at the vestibule. When, by reason of abnormal turbinate bones and septums, this mucus is allowed to collect in the nose and sinuses, bacteria find in it a scant food supply, sufficient however to enable them to gain a foothold and over a period of years to cause sinus disease amenable only, in some cases, to the most radical surgery. Conservative, constructive nasal surgery in young life, as outlined above, in my judgment, needs to be stressed as strongly as possible.

It is my hope this paper will point more clearly the way to a means of definite diagnosis of sinus disease before surgery is done; also, that it will focus attention on the obligation we all have to the young adult who comes to us with one or more prolonged head colds each winter, with or without localized headache, red pharynx, with enlarged lymphatic masses, and possibly definite sinus soreness. Recognition of the nasal deformity in the cause of these conditions, and the proper treatment of these patients, is a scientific and obligatory step forward in preventive medicine and surgery.

AMEBIC DYSENTERY*

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In the past decade the conception of amebic dysentery has undergone a radical change. Take for example the matter of incidence and climate. Formerly it was considered largely a disease occurring in the tropics, it is now known to occur frequently in the temperate climates.

There are two possible explanations for this changing point of view. First, the observers in the temperate climates have become more familiar with this disease and recognize it more easily; second, the improved methods of transportation which have taken place have been a causative factor in the dissemination of the disease. Probably both factors have been responsible for

*Read before the Medical Society of the City and County of Denver, Feb. 18, 1930.

its apparent increase in the temperate climates. Certainly, amebic dysentery can no longer be considered a curiosity in the temperate zones.

In a recent survey made in Chicago in 1929, by Williamson, Kaplan and Geiger, it was shown that, among 1,148 persons examined who were employed in various phases of handling food, a surprisingly large proportion were found to harbor pathogenic amebae; twenty-seven were found to be carriers of Entameba histolytica, while two were found to be actively infected. This survey was made upon a group of employees in hotels and restaurants who were engaged in the handling of food; a considerable proportion of them were foreign born. Further, it was shown that there occurred between the years of 1921 and 1927 inclusive, thirty-three deaths from amebic dysentery in the city of Chicago. The obvious conclusion from the survey is that amebic dysentery can no longer be considered solely a tropical disease.

Not only has there been a marked change in the conception of the epidemiology of amebic dysentery in the past decade, but the nature of the infection has been given a wider interpretation. Whereas formerly it was considered an infection confined largely to the colon, recent reports tend to indicate that this disease is a systemic infection, which may involve any part of the body, although, it is located primarily in the bowel.

The common symptoms of amebic dysentery are diarrhea, abdominal pain, cramps, blood tinged stools, increased urgency to stool, tenesmus and sacral pain. Some of the constitutional symptoms are chills, fever, headache, nausea and secondary anemia. The onset, as a rule, is rather sudden, with an attack of cramp-like pain in the abdomen. Many patients are inclined to attribute the attack of abdominal distress to some particular article of food they might have eaten shortly before the onset of the attack, and seek the logical remedy in a purgative; however, when other symptoms appear while the cramps continue, the patients come to realize that there is something more at the basis of their distress than an attack of indigestion. It is then that they seek medical advice.

Not all cases, however, present the acute mode of onset. In some patients the onset is slow and insidious. The patient becomes aware of a loss of strength and weakness which is contrary to his previous state of health. Headaches and lassitude may occur, and occasional attacks of diarrhea alternating with constipation. There may occur a loss of weight and occasional abdominal distress. These symptoms may be present over a period of months in spite of the patient's own efforts to correct them, and the diagnosis becomes established from the results of a careful physical and laboratory examination.

When, however, the onset is sudden following the attack of abdominal distress, the bowel movements take on the characteristics of a true organic diarrhea. The stools increase in frequency changing from the one or two movements a day to four or five; later there may be as many as twenty or more stools in twenty-four hours; also the stools change in characteristics. Beginning with the normal stool which is putty-like in consistency, it becomes soft, then liquid in character; then blood, pus and mucus may make their appearance. In health, evacuations of the bowels are accompanied by no disagreeable sensation, but in amebic dysentery it becomes a disagreeable function. Each evacuation is accompanied by tenesmus and a disagreeable cramp-like sensation in the abdomen. Evacuations are painful and unsatisfactory to the patient. They leave the patient with a sense of dissatisfaction, as though there was something more to come away. Blood, pus and mucus appear in the stools. Abdominal distress is common. Following the onset, the patient is apt to become conscious of the fact that he has an abdomen and that there is something wrong in the interior of it. He is annoyed by a sense of discomfort throughout the abdomen, but more commonly, in the left lower quadrant. The abdominal consciousness may increase in intensity and become abdominal pain. Sharp, cramp-like pains may occur in any part of the abdomen,

and these are usually identified with some segment of the colon. Sacral pain is a common symptom. It occurs as a dull, heavy, dragging sensation in the sacrum, and sometimes it involves the entire perineum. It is usually relieved by evacuations of the colon. This symptom is very annoying to the patient. It may persist at night and interfere with the patient's rest. Chills, fever and sweats may occur at times, in periodic attacks, rendering a differential diagnosis from malaria necessary. Headache, nausea and vomiting may occur associated with lassitude, fatigue and loss of weight. Blood examination may indicate a marked leukocytosis varying from 10,000 to 40,000, while there is a reduction of the erythrocytes and hemoglobin.

In addition to the classical symptoms just enumerated, recent reports indicate that other parts of the body may be involved in the disease process.

Osler, Roger and others report abscess of the liver due to amebic infection, which perhaps is the most common complication.

Cole and Heideman report lesions outside the gastro-intestinal tract. They report an instance where a large ulcer of the abdominal wall followed an appendectomy with drainage, which they believed was caused by an amebic organism, and they express the opinion that it is possible that the amebae might also have been the cause of the appendicitis.

Heimburger reports a case of amebic infection of the skin occurring in a Chinese farmer residing in the country, who entered the hospital complaining of a large ulcerated area in the right loin which was painful and discharged a large quantity of brownish colored pus with a putrid odor. He had been suffering with this condition for about one year. Examination showed an ulcer 12 cm. long, 6 cm. wide and 4 cm. deep, involving the right loin and extending above it on the abdominal wall. The edges of the lesions were indurated, everted and raised above the surrounding tissue. Initial examination made from the pus of the lesions showed pus cells, staphylococci and streptococci, but subsequent examinations made on the warm stage showed living amebae having the typical ameboid movements. They term the infection as Amebiasis Cutis.

Simon reports a case of arthritis deformans which he attributed to Entameba histolytica.

Kofoid and Swezy successfully demonstrated the presence of the organisms in the joint structures at the lower end of the femur after decalcifying the bone and staining the cut sections with iron and hematoxylin.

Warthin demonstrated the organism in the testis of a man who had suffered with chronic diarrhea.

Numerous writers have reported the demonstration of amebae found in infections of the teeth.

We wish to report a series of twenty-four cases of amebic infection in man, encountered in this state since the year 1926. Twenty-one of these patients presented the typical picture of amebic dysentery, while three of them manifested amebic lesions outside of the gastro-intestinal tract. In all but one of these patients the living amebae were demonstrated and identified as the Entameba histolytica. In the case of the patient in whom the amebae were not demonstrated, the symptoms were so typical that a clinical diagnosis seemed reasonable. We shall not enter into a description of the Entameba histolytica. The organism is so well known that its identification from its characteristics is a simple matter in the hands of any trained parasitologist, and a complete description of it is to be found in any of the numerous text books dealing with pathogenic organisms. However, a word may be said on the manner of obtaining the organisms.

To attempt to examine the stools of a patient with amebic dysentery when such a stool has been permitted to chill is likely to give disappointing results. A procedure that we have found to be satisfactory is to obtain a small amount of material directly from the lesion in the colon through a sigmoidoscope. This material is then placed in a test tube containing a small amount of warm salt solution, and then examined while the solution is still warm. In this way we

WRITER'S SERIES OF AMOEBIC DYSENTERY

No	Name	Sex	Age	Duration	G-I Symptoms	Constitutional Symptoms	Residence Colorado	Previous Residence	Complications
1	EG	M	30	4 yrs	Ulceration of colon. Diarrhea Digestive Disturbance	Loss of Weight Secondary Anemia	Born and lived in Colorado except 1½ yrs	U.S.A.	Trichomonas Intestinalis
2	TEE	M	29	5 yrs	Ulceration of colon Diarrhea	Loss of Weight See. Anemia	Born-lived in Colo. except 2 yrs	U.S.A.	_____
3	EJ	M	30	6 yrs	Ulceration of colon Diarrhea	Loss of Weight Sec. Anemia	Born-lived Kansas except 2 yrs	U.S.A. A.E.F.	Diplococcus of Bargen
4	WBR	M	33	3 yrs	Ulceration of colon Diarrhea	Loss of Wt. Secondary Anemia	Born-lived Colo. except 2 yrs	U.S.A. A.E.F.	_____
5	VWJ	M	24	.7 yrs	Ulceration of colon Diarrhea	Loss of Wt. Secondary Anemia	Born and lived in Colorado	Colorado	Skin lesions of scalp arms & legs
6	MHF	M	23	6 yrs	Ulceration of colon Diarrhea	Loss of Wt. Secondary Anemia	Born in Colorado	California	_____
7	GJ	M	17	1 yr	Ulceration of colon Diarrhea	Loss of Wt. Secondary Anemia	Born in Colorado	Colorado	Deceased
8	YC	M	46	10 yrs	Ulceration of colon Diarrhea	Loss of Wt. Secondary Anemia	Born in Ill. 15 yrs Colo.	Illinois	_____
9	FCB	M	42	6 yrs	Ulceration of colon Diarrhea	Loss of Wt. Secondary Anemia	Born and raised in Colorado	Colorado	_____
10	REJ	M	44	8 yrs	Ulceration of colon Diarrhea	Loss of Wt. Secondary Anemia	Born Ill. 24 yrs in Colorado	Illinois	Jaundice
11	WD	M	51	9 yrs	Ulceration of colon Diarrhea	Loss of Wt. Secondary Anemia	1 year	Canada and New York	_____
12	HJB	M	58	11 yrs	Ulceration of colon Diarrhea	Loss of Wt. Secondary Anemia	25 yrs	Illinois	Diplococcus of Bargen & Giardia
13	DPR	M	35	3 yrs	Ulceration of colon Diarrhea	Loss of Wt. Secondary Anemia	4 yrs	Panama and California	_____

have been able to demonstrate the amebae where examination of the stools gave no results. Even by employing this method, at times it has been necessary to make repeated examinations before the amebae were found.

An analysis of our series of twenty-four patients shows that sixteen were males and eight were females. The age incidence shows one case in the second decade of life; seven in the third; ten in the fourth; three in the fifth, while three were in the sixth decade. All of the patients manifested gastro-intestinal signs and symptoms, especially diarrhea, ulceration of the colon and tenesmus. All of them also showed some constitutional symptoms, as loss of weight and secondary anemia. Analysis of the residence of the patients shows that most of them had lived practically all of their lives in the temperate zone. In only one instance was there a definite history of the patient having lived in the tropics. This occurred in the patient D. P. R., who had spent some time in the Panama Canal zone. Two patients had been with the American Expeditionary Force in France; two had visited Florida and two had lived in Texas, but these six never left the temperate zone. Among the complications

No	Name	Sex	Age	Duration	G-I Symptoms	Constitutional Symptoms	Residence Colorado	Previous Residence	Complications
14	LJ	M	40	3 yrs	Ulceration of colon Diarrhea	Loss of Wt. Secondary Anemia	4 years	New York and Florida	———
15	SR	M	37	5 yrs	Ulceration of colon Diarrhea	Loss of Wt. Secondary Anemia	10 years	Illinois	———
16	SJB	M	57	4 yrs	Ulceration of colon Diarrhea	Loss of Wt. Secondary Anemia	30 years	Iowa	Trichomonas Intestinalis
17	BCG	F	40	9 yrs	Ulceration of Colon Diarrhea	Loss of Wt. Secondary Anemia	Colorado	Occasional visits Florida	———
18	FAR	F	39	16 yrs	Ulceration of colon. Nausea Diarrhea Digestive Disturbance	Fever Loss of Weight Chills Secondary Anemia	Born and raised in Colorado	None	Jaundice Spleen enlarged and cirrhosis of liver with nodules
19	VM	F	28	5 yrs	Ulceration of colon Diarrhea	Loss of Weight Sec. Anemia	10 years	Illinois	———
20	GHI	F	34	19 yrs	Nausea Vomiting Ulceration of colon Diarrhea	Loss of Weight Secondary Anemia	34 years	None	Ulceration of skin-knee and ankle joints acutely inflamed & swollen
21	JIA	F	32	4 yrs	Ulceration of colon Diarrhea	Loss of Wt. Secondary Anemia	Born in Colorado	Lived 25 years in California	———
22	McAJ	F	23	3 yrs	Ulceration of colon Diarrhea	Loss of Wt. Secondary Anemia	10 years	Iowa	———
23	MHA	F	33	7 yrs	Ulceration of colon Diarrhea	Loss of Wt. Secondary Anemia	12 years	Texas	———
24	TES	F	35	2 yrs	Ulceration of colon Diarrhea	Loss of Wt. Secondary Anemia	5 years	Texas	Diplococcus of Bargen

that were encountered, six patients were found to have other forms of coexisting infection of the colon. Trichonomas was found in two patients. Bargen's diplococcus was found in three and Giardia was found in one. Two patients manifested skin lesions of the type described as Amebiasis Cutis by Heimburger. One of the patients with the skin manifestations also developed acute arthritis of the ankles and knee joints. One patient presented symptoms of probable biliary stone, and upon operation was found to have a cirrhosis of the liver with numerous small nodules which were thought to harbor encysted amebae.

The following case reports are considered of sufficient interest to present in detal:

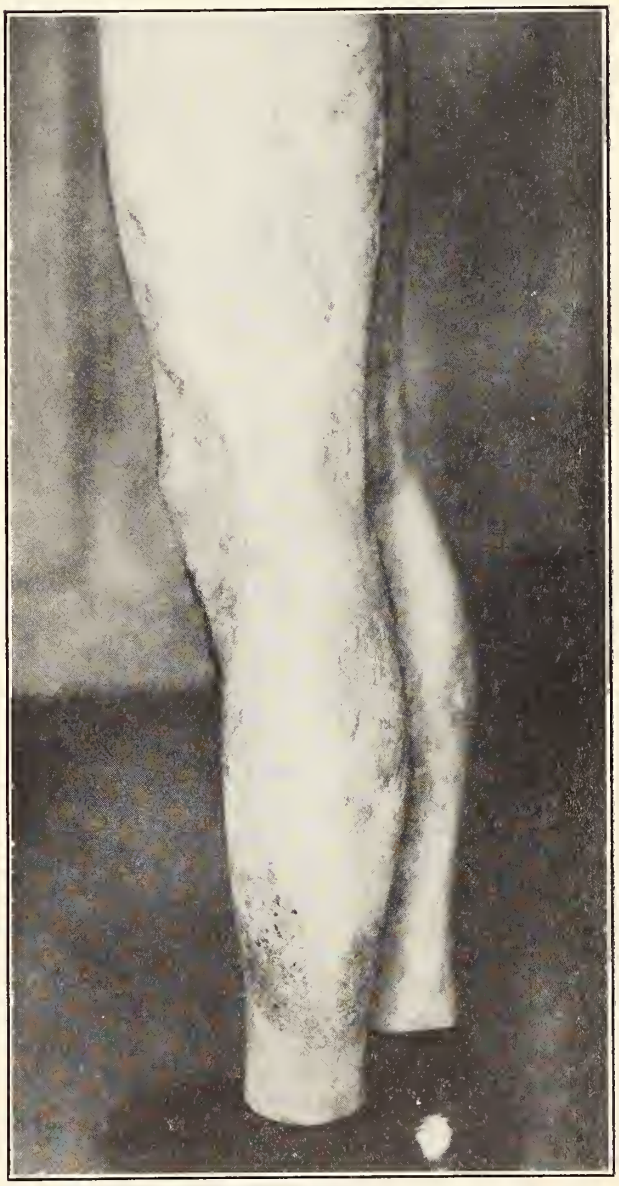
CASE REPORTS

Case 1: Miss I. G., aged thirty-four, complained of diarrhea, abdominal distress, nausea and vomiting of nineteen years' duration. The onset was sudden, with fever, abdominal distress and diarrhea. At that time she was admitted to a hospital as a typhoid suspect. The stools increased in frequency until there were as many as twenty-five and thirty in twenty-four hours. Blood, pus and mucus appeared in the stools. After several months she was released from the hospital somewhat improved, but shortly the diarrhea returned. Since then she has had periods of remissions and exacerbations when the symptoms would return. In 1918 a cecostomy was performed for the purpose of putting the colon at rest and permitting irrigations. The patient came under my observation August 26, 1929. She stated that she had lost forty pounds in the past nineteen years. She was so weak and apparently suffering with pain that she was assisted by two other persons. She stated that she was having from twenty to thirty evacuations in twenty-four hours through the cecostomy opening, also she was having leakage through the rectum. She complained of painful joints, especially the ankle and knee joints, and ulceration on the right leg. Physical examination showed a

white female, apparently acutely ill. She was anemic in appearance, and in a state of mental depression. The ankle and knee joints were swollen, reddened and tender to the touch. On the right leg about 12 cm. above the ankle on the anterior surface was seen an ulcerated area 10 cm. by 8 cm. in size. The edges of the lesion were raised and indurated while the center of the lesion was necrotic and had a raw-beef appearance. In the abdomen, in the right lower quadrant was seen a cecostomy opening about the size of a dime, through which fecal matter was seen to escape. Examination of the blood showed 30 per cent hemoglobin; 2,100,000 erythrocytes; 15,000 leukocytes. Sigmoidoscopic examination showed ulceration of the rectal and sigmoidal mucosa, also the presence of an ano-rectal fistula. The ulcers were well defined; they were single and raised above the level of the mucosa with a yellowish center, which was slightly depressd. The surrounding mucous membrane was red and inflamed. The yellow gelatinous mass formed the center of the ulcer and was found to contain the amebae. Ameba histolytica was obtained from the material removed from the rectum and also of the skin lesion. The following treatment was instituted: One grain of emetine hydrochloride was given intravenously daily for one week, and during the same interval there were given daily irrigations of coal oil through the rectum. After one week of this treatment, the patient was given a rest of three weeks, when the regime as outlined was repeated. The treatment was then discontinued for three months, and repeated for one week. Following the first week of treatment, there was noted an improvement. The symptoms began to subside, the stools began to diminish in frequency and the patient began to put on weight. In addition to the medical treatment the ano-rectal fistula was excised and given the necessary post operative care. Also the cecostomy was closed in the usual manner with a satisfactory result. Improvement has been satisfactorily progressive. At present the swelling and pain of the joints has subsided, the skin lesion has healed, leaving a brownish scar. The patient has one formed stool a day. She is symptom free and she has gained about fifteen pounds in weight.

Case 2: Mrs. R. F., aged thirty-nine, came under observation on August 9, 1927. She stated that since 1912 she had been troubled with diarrhea, having as many as twenty to thirty evacuations in twenty-four hours. She had abdominal cramps, tenesmus, urgency to stool, chills and fever. She had lost forty pounds and was moderately jaundiced. In 1913 she had a cholecystectomy and appendectomy.

Physical examination showed a poorly developed woman, not acutely ill. There was a definitely icteric tint to the sclera and the skin. The heart and lungs were approximately normal. Examination of the abdomen showed an old surgical scar in the upper right rectus region. The colon was palpable and tender. Sigmoidoscopic examination showed extensive ulceration in the rectal and sigmoidal mucosa. The ulcerations were well defined and raised with yellowish depressed centers, containing gelatinous debris, some of which was removed and found to contain living amebae.



Pigmented scars following amebiasis cutis

Treatment was instituted consisting of intravenous emetine injections and coal oil irrigations. The patient showed immediate response to treatment, with a diminution in the number of stools per day, and a reduction in the severity of the symptoms. The patient manifested a progressive improvement and was allowed to return to her home. However, about one year later, she returned with a recurrence of her symptoms. Again she complained of diarrhea, chills, fever and jaundice. The treatment was repeated with considerable



Amebic abscess of forearm

improvement to the patient. In view of the jaundice which is not a characteristic symptom of amebic dysentery, it was considered advisable to study the biliary system. Accordingly the usual dye study was made, which suggested the possibility of biliary stone. A laparotomy was advised and a Talma operation performed by Dr. Leonard Freeman in St. Joseph's Hospital. Examination of the viscera at the time of operation showed extensive adhesions, involving the cecum, ascending colon and liver. The liver was cirrhotic and contained numerous small, hard nodules, scattered under the capsule. There was no stone found. The spleen was enlarged to about twice its usual size. The other viscera were approximately normal. The patient made an uneventful recovery, and had an uneventful convalescence. Following the operation she was comfortable for about one year, when the diarrhea returned. It is the opinion of the writer that the small, hard nodules seen in the liver were probably sites of encysted amebae, and it is these encysted amebae which are resistant to the treatment, and which give rise to the recurrence of the symptoms.

Conclusions

A series of twenty-four cases of amebic infection in man is reported as encountered in the state of Colorado since 1926.

Most of these patients had lived practically all of their lives in the temperate zone; only one had ever visited the tropics.

The age incidence shows that the disease occurs most frequently in the third and fourth decades of life.

Amebic dysentery is primarily an infection of the colon, but its complications may involve other parts of the body.

The general conception of the epidemiology of amebic dysentery is undergoing a change. It is no longer considered a disease limited to the tropics.

BIBLIOGRAPHY

[1]Engman and Heithaus: Amebiasis Cutis, Journal of Cutaneous Diseases, 37: 719, 1919.

[2]Heimburger: Amebiasis Cutis with a survey of the medical literature to date—Archives of Dermatology and Syphilology, 1: 49, 1925.

[3]Osler: Amoebic dysentery hepatitis—Principles and Practice of Medicine, 10th Edition, p. 240.

[4]Roger: The mode of formation of secondary amebic abscess of the liver with note on the serum test for dysenteries—British Medical Journal, 1: 1315, 1903.

[5]Chisholm: Ulceration of the colon caused by entameba histolytica. Colorado Medicine, 22: 346-350, 1925.

[6]Cole and Heideman: Amebic ulcer of the abdominal wall following appendectomy with drainage. Journal, A. M. A., p. 92:537 (February 16), 1929.

[7]Williamson, Kaplan and Geiger: A survey of amebic dysentery in Chicago. Journal, A. M. A., 92: 528 (Feb. 16) 1929.

[8]Simon: Intestinal infection with entameba histolytica as a factor in arthritis deformans, New Orleans Medical & Surgical J., 76: 243 (Nov.) 1922.

[9]Kofoid & Swezy: On the occurrence of endameba dysenteriae in bone lesions in arthritis deformans, California State Journal of Medicine, 20: 58 (Feb.) 1922.

[10]Warthin: The occurrence of entameba histolytica with tissue lesions in the testis and epididymis in chronic dysentery. Journal of Infectious Diseases, 30: 559, 1922.

A PROPER GASTRO-INTESTINAL EXAMINATION*

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A proper gastro-intestinal examination must determine whether each and every portion of the gastro-intestinal tract is or is not diseased; also whether there is any pathology elsewhere in the body giving rise to symptoms simulating disease of the gastro-intestinal tract.

The teeth must be examined because of their sinister part in the production of gastric and duodenal ulcer, as proven by Billings, Rosenow and others.

The esophagus must be examined for benign stricture, cardio-spasm and cancer.

The stomach must be examined for ulcer, cancer and certain rare conditions, originating in the stomach, as well as for disorders in motility that may be caused reflexly by pathological conditions located elsewhere.

The duodenum must be examined for stasis, the duodenal cap for ulcers, adhesions and pressure deformities from the surrounding viscera, especially the gall bladder.

We have no quarrel with those who consider the appendix as always diseased, but we believe a careful estimation of its part in the production of the gastro-intestinal disorder should be made in each individual case. If this were always done, we would not run across cases so often with a history of removal of the appendix without relief of symptoms.

We must not forget that the gall bladder is an integral part of the gastro-intestinal tract, both in regard to its function and its symptoms when diseased. We now have an accurate and practical test of the amount of impairment of this trouble producing organ in the method of Graham and Cole. By their method and the various modifications which they and others are introducing from time to time, we are able to visualize the gall bladder by the administration of radio-opaque substances. This method has overcome our weakest point in gastro-intestinal diagnosis and is over 95 per cent accurate if the dye (sodium tetraiodophenolphthalein) is given intravenously.

It is surprising how often it is necessary to make a careful examination of the kidneys, especially the right, by means of the x-ray to eliminate them as a possible cause of gastro-intestinal symptoms. Ptosis, nephrolithiasis, pyo or hydro-nephrosis, tuberculosis, malignant growths of the kidneys and stricture of the ureter are often discovered in a routine examination of the gastro-intestinal tract.

Above the diaphragm, in addition to the esophagus, the examination must exclude as a possible cause of the gastro-intestinal symptoms the following conditions: pneumonia, tuberculosis, carcinoma of the mediastinum or lungs, pleurisy, spontaneous pneumothorax, abscesses originating in the lower lobe of the lung, particularly the right†, with a possible subphrenic abscess originating therefrom. The pain due to gall bladder disease, aneurysm, myocarditis and angina pectoris is often confused, each being mistaken for the other; often more than one of the above may be present. Myocarditis is extremely common in fat people and is a frequent complication of cholecystitis. Acute dilatation of the heart causes hypostatic congestion of the liver and bowels and thus may cause abdominal symptoms.

Arthritis or tuberculosis of the vertebrae, by causing pressure on the nerves going to the abdominal area, may cause abdominal symptoms. A compression fracture of the vertebra, which is fairly common, may give rise to gastro-intestinal symptoms.

It is well to remember that the most common causes of nervousness and hysteria in women are a toxic goitre and gall stones; also, that migraine or an unsuspected pregnancy may cause nausea and vomiting.

Each and every one of the above conditions must be carefully considered in arriving at a careful gastro-intestinal diagnosis. Pa-

*Read before the Arkansas Valley Medical Association, March 2, 1929.

†Some inflammatory processes in the lower right lung give rise to symptoms in the upper right quadrant of the abdomen.

tients having each of the above conditions have been sent to us for an x-ray examination to determine what part of the digestive tract was at fault. It is a rank injustice to the physician or surgeon who refers the case, as well as to the patient, to make an independent examination of the stomach, duodenum, gall bladder, kidneys, etc., as the symptoms of one disease so often simulate those of another and more than one disease may be coexistent in the same individual.

A careful history and physical examination are equal in value to a careful x-ray examination and your batting average will be low if you attempt to use either of these methods alone. We consider it important to have the patient tell in his own words exactly what he has noticed about himself that caused him to consult his physician. We take this down without interruption on our part until he has finished, after which we analyze his statements to see if both the patient and ourselves have accurately described his complaints. Our final diagnosis must explain all his symptoms or we have failed. A statement that the condition is idiopathic, hysterical, neurasthenic or due to nervousness, is practically an admission of failure on our part. In addition, we must discover the presence of any pathology of the gastro-intestinal tract even though lacking symptoms.

In taking a history a careful record covering the following points must be made:

(1) Duration of the present trouble.

(2) Is the condition continuous every day and all day or is it recurrent? Does he have complete relief between attacks? If there is pain, does it come on suddenly and leave suddenly? Is the pain slight or severe; continuous or paroxysmal; referred to the heart, shoulder, back, opposite side, umbilicus, leg, groin, testicle? What time of day does it occur? Is it affected by breathing, coughing, belching, flatus, food, soda, enema, morphine, or lying down?

(3) Is there difficulty in swallowing? To both liquids and solids? Of how long duration?

(4) Is there vomiting, hematemesis, nausea? If so, how frequent and over how long a period has it lasted? Is there a history of flatulence, belching, indigestion, jaundice, nephritis, retention of urine, uremia, colic (stone), migraine, pregnancy, enlarged spleen?

(5) Is there tenderness on pressure, especially under the fluoroscope, in the presence of the opaque meal or enema?

(6) Is there shortness of breath, increase in the rate of the heart beat, fever?

(7) Is there nervousness? If so, inquire about history of gall stones, goitre with loss of weight, tachycardia.

(8) Loss of weight. Look for toxic goitre, diabetes, gall-bladder diseases, stricture of the esophagus as well as for cancer in the gastro-intestinal tract.

(9) If the patient is anemic and gives a history of hematemesis and tarry stools, one must exclude cancer or ulcer of the digestive tract. However, nephritis, syphilis, parasites, splenic and blood diseases, or hemorrhoids may be the cause of the anemia.

Balfour states that hematemesis occurs in 25 per cent of gastric and 20 per cent of duodenal ulcers. The bleeding is more often an oozing in cancer of the stomach. Of extragastric causes the most common is cirrhosis of the liver, next, diseases of the spleen especially splenic anemia, then chronic jaundice, gall bladder disease, appendicitis and other chronic infectious processes within the abdomen.

(10) Urinary history: Inquire about pain, frequency of urination, retention, blood in the urine, enlarged prostate and uremia.

Thus a careful physical examination of the entire body, a chemical and microscopical examination of the stomach contents, urine, feces, blood, sputum, etc., may all be necessary in a proper gastro-intestinal examination, if the history or the examination suggests their necessity.

A careful x-ray examination must always be made and must include teeth, esophagus, chest, stomach, duodenum, appendix and colon, including both fluoroscopic examination and films. At least four stomach films should be taken, and 6-hour, 24-hour, 48-hour films and if the appendix does not empty, a 72-hour film, and an enema. Examine the

stomach films for any indirect sign of gall-bladder pressure or adhesions. If you suspect the gall bladder to be at fault and no stones have been visualized give the patient the dye test, either intravenously or orally. The intravenous method of administering sodium tetraiodophenolphthalein is much more accurate and without danger if properly performed.

A routine kidney film should be taken for possible stones or ptosis and it may be necessary to take a pyelogram to eliminate stricture of the ureter, tuberculosis, hydronephrosis or malignancy of the kidney, or a kidney film in the erect position to determine the exact amount of trouble due to ptosis, any of which may give you gastro-intestinal symptoms.

Examine the film of the vertebrae, particularly the dorsal vertebrae, for an arthritis, tuberculosis or a compression fracture as they may be the cause of an abdominal pain.

Occasionally, an unsuspected pregnancy discovered by vaginal or x-ray examination of the pelvis will be found to be the sole cause of the abdominal symptoms.

The esophagus

Strictures of the esophagus may be benign or malignant, or due to cardio-spasm. The patient may or may not notice difficulty in swallowing, or may incidentally remark that he has been dieting and it will require careful questioning on your part to elicit the fact that he is using liquids only because solid foods make him vomit (regurgitate). There may be extreme loss of weight because of limited food intake in benign stricture and cardio-spasm. The x-ray and fluoroscopic examination will demonstrate the presence of the stricture, direct examination with the esophagoscope will determine its character.

The stomach

The main problem in connection with the stomach is the differentiation between carcinoma and ulcer. Ulcer of the stomach is about one-fourth as common as ulcer of the duodenal cap. Cancer of the stomach is often found and may start at the site of an ulcer. If a patient gives a history of gastric ulcer, but says that of late the symptoms have changed, the possibility of a beginning malignancy must be carefully considered.

Moynihan states: "Gastric ulcer is a disease of comparative rarity. Its diagnosis from the clinical evidence alone is difficult. Its mimicry of other conditions is extremely frequent. The radiographic examination alone is more accurate than all other methods combined (90 per cent)." Again, he states: "Of the chemical examination of the stomach contents, I do not speak with enthusiasm. For several years my patients were submitted to this form of investigation, but I cannot think that the evidence thereby obtained enabled a greater accuracy to attach to the diagnosis. Hyperchlorhydria is present in so many other diseases than gastric or duodenal ulcer that its presence does not offer positive or even contributary evidence of any real value. In rather over 40 per cent of the total number of cases in which an ulcer is present there is no hyperchlorhydria, and in a small number estimated at from 10 to 20 per cent, there is a reduction in the gastric acidity. Over a series of years I find that for every gastric ulcer seen on the operation table, there are four or five duodenal ulcers, and five to six cases of cholelithiasis." Again: "It will help to a better understanding of the whole most difficult subject if in future no diagnosis of gastric ulcer is accepted, as a basis for treatment, unless the presence of ulcer is made certain by x-ray examination or by operation . . . In ulcer of the stomach, pain is the chief symptom, and regularity its chief attribute. There are periods of intermission at one period or another during the year." He states that there is food relief before the next meal, followed by pain which in time is followed by freedom from pain. Food relief is erratic in gastric ulcer in our experience.

In duodenal ulcer, there is pain when the stomach is empty followed by food relief and soda relief, both of which are generally prompt and complete. The pain in gastric ulcer is variously described as boring, burning, aching or gnawing. It may be high in the epigastrium, on the left side or in the back, particularly likely to be in the back when there is a subacute perforation into the pancreas. Vomiting is rare in either gastric or duodenal ulcer unless obstruction has developed. Bleeding occurs in about 25 per cent, but it may be caused by splenic anemia, cirrhosis of the liver, appendicitis and other infective conditions within the abdomen. The following is a summary on behalf of the stomach tube:

The Mayo Clinic classified 1,039 patients on whom a gastric analysis was performed into four groups.

Group 1: 730 patients, with normal values, of which 13 per cent had organic diseases of the stomach. Seven cases of operable cancer of the stomach gave normal test meal

findings. In one-third of 200 cases of this type, the gastric acidity was normal.

Group 2: Anacidity. Of the 171 patients with anacidity 18 per cent had cancer in or adjacent to the stomach. Three other definite maladies were often associated with anacidity; pernicious anemia, well marked arteriosclerosis in elderly persons, and chronic diarrhea, besides a large number of cases in younger persons recorded as achylia gastrica.

Group 3: Hyperacidity without stasis. Fifty per cent had associated demonstrated organic lesions in the stomach, duodenum, gall bladder or appendix.

Group 4: Hyperacidity and stasis. Eighty-six per cent had lesions in the abdominal cavity; 96 per cent with gastric content over 400 c. c. had obstructive lesions near the pylorus.

In regard to x-ray findings, Carman states that "The niche, the accessory pocket, and the organic hour glass stomach are the only conclusive roentgen signs of ulcer." Chief among the secondary manifestations are the six-hour residue, the spastic phenomena as incisura, hour glass stomach and diffuse spasm. Ulcers cause a teat-like protrusion outside of the gastric cavity, while cancers push into the lumen. Both deformities are organized and must be present in every film and under fluoroscopic examination. Peristaltic waves will not obliterate them.

In regard to cancer of the stomach, Carman states: "The filling defect is the basic roentgenologic sign of cancer and practically indispensable to a positive diagnosis." It is permanent; peristalsis is absent from this area. There may be other perversions of peristalsis. There is rapid and early emptying in nonobstructive cases, delayed emptying in obstructive cases. There are a great many other x-ray manifestations, which time will not allow me to discuss, all of which must be carefully considered in arriving at an accurate diagnosis. Carman further states that one-third of all cancers are in the stomach and that 95 per cent can be shown by x-ray. Ninety-five per cent of tumors of the stomach are cancerous, practically all tumors encroaching upon the gastric lumen are cancerous; 70 per cent of all gastric cancers occur in the pyloric end of the stomach, while 90 per cent of all gastric ulcers are on the lesser curvature and on the posterior wall near the lesser curvature above the incisura angulari.

Ulcer of the cap. Hunger pain followed by almost instantaneous and complete relief when food is taken, periodical attacks lasting for weeks and followed by intermissions of several weeks or months, point very strongly to a diagnosis of ulcer of the cap, but should be confirmed by a careful x-ray examination if you wish to avoid serious and repeated errors. Deformity of the cap is the most positive sign of ulcer and must be constant. Part of this deformity is due to spasm. The indirect sign of ulcer of the duodenal cap as shown in the stomach are hypertonus, hypermotility and hyperperistalsis.

These symptoms of excessive motor stimulation are replaced later by hypotonus, first noticed in the antrum, later by a dilatation of the stomach and retention of food as shown by the six-hour residue. There may be a gastric incisura which does not disappear upon the administration of belladonna.

The appendix

A normal appendix should fill and empty at the same time as the cecum. A diseased appendix may not fill at all, or if it does fill, it may not empty for several days after the cecum has emptied. The appendix if diseased is tender to pressure under the fluoroscope, or if it does not fill, the ileo-cecal junction is tender to pressure. The tender point is at its junction with the cecum and not the tip. The tip may be movable or be bound down by adhesions. The appendix may be irregularly filled, the lumen often containing fecoliths. Careful search must be made under the fluoroscope for a retrocecal appendix. Place the patient in various positions and palpate with the gloved hand or spoon.

The colon

The most important sign of cancer of the colon is the filling defect, next comes obstruction. The patient is fluoroscoped while the barium enema is being given. An opaque

meal is often an aid in outlining the proximal point of obstruction. Diverticulitis and tuberculosis must be excluded. Diverticulitis can generally be distinguished by the small extra luminal particles of barium; it often becomes malignant. The clinical history must be carefully considered in eliminating tuberculosis of the bowel. Ulcerative colitis is readily diagnosed by the ribbon size of the colon which is constant, being due to definite organized inflammatory tissue.

The gall bladder

Practically speaking, our problem in the diagnosis of gall-bladder disease falls under three heads; namely: cholecystitis, cholelithiasis and cancer. Before the method of Graham and Cole was used for visualizing the gall bladder, an x-ray diagnosis of a diseased gall bladder was made by direct and indirect signs.

The direct signs are a visualized gall bladder and gall stones. If our sole proof of a diseased gall bladder depended upon its visualization it would not warrant the time and expense as a real shadow is very seldom obtained and the shadows in this area are too often misleading. Gall stones, when visualized, are conclusive proof, but the most optimistic of us do not claim that over 50 per cent of them are visualized. They must not be confused with stones in the kidney, calcified lymph glands, lime deposits in the ribs, fecoliths or fecal matter.

The indirect signs of gall-bladder disease are obtained in the routine examination of the gastro-intesinal tract and are: distortion of the antrum, duodenal cap, descending portion of the duodenum and the colon, caused by adhesions or by direct pressure of the gall bladder upon them.

The administration of radio-opaque substances introduced by Graham and Cole, has given us the means whereby we can determine whether the gall bladder is properly functioning. The dye, usually sodium tetraiodophenolphthalein, is given either intravenously or orally. The intravenous method is the more accurate.

Six hours after the intravenous injection of the dye and sixteen to twenty hours after the oral administration, the patient returns for a radiograph. All food is withheld from the time that the dye is given until after the first film is taken. A normal gall bladder should be visualized at this time and should be normal in density, size and shape. The patient then eats a regular meal of solid food and a film taken two hours after eating should show the gall bladder about one-half to two-thirds empty. A film taken twenty-four hours after the administration of the dye (forty hours if the dye is given orally), and after a second meal, will show no trace of the gall bladder shadow if the gall bladder is normal.

Failure of visualization indicates an absolutely non-functioning gall bladder (by the intravenous method) and we report it as a surgical or non-functioning gall bladder. In about three-fourths of the cases in which the gall bladder is not visualized, gall stones will be found at operation, the remainder having a marked cholecystitis with thickened walls. Slowness in filling, decrease in density and delayed emptying generally go together and indicate pathology, which may or may not justify surgical interference. Mottling or negative shadows indicate stones of low density which are not visualized by any other method.

The x-ray diagnosis of cancer of the gall bladder depends entirely upon the antecedent cholecystitis and cholelithiasis which generally completely prevent the entrance of the dye into the gall bladder if the disease is at all advanced. The proportion of cases of cholelithiasis which develop cancer is estimated at from 4 to 18 per cent. Ewing, in speaking of carcinoma of the gall bladder, says that gall stones were present in from 69 to 100 per cent as reported by various authors. We may find metastases in the chest or elsewhere, or pressure distortion on the surrounding viscera, but from an x-ray standpoint all we can say is that we have a chronic cholecystitis or a non-functioning gall bladder.

Summary

In making a proper gastro-intestinal examination, it is necessary to take an accurate history, to make a careful physical ex-

amination and to analyze these findings in conjunction with the x-ray findings. It may be necessary to examine the stomach contents, the urine and blood. The x-ray examination must include the teeth, esophagus, stomach, duodenum, appendix, colon and an extremely careful examination of the gall bladder which is at fault in about 30 per cent of the cases and is so often overlooked. In addition, we must exclude all conditions above and below the diaphgram (as enumerated before) which may simulate gastro-intestinal disease. Our diagnosis must explain all of the symptoms and we must be on the alert for other diseased conditions which may not be producing any symptoms.

BIBLIOGRAPHY

Balfour, Donald C.: Hematemesis. Collected Papers of the Mayo Clinic, 14:53, 1922.

Carman, Russell D.: The Roentgen Diagnosis of Diseases of the Alimentary Canal. 1920, page 676.

Fitz, Reginald: In Behalf of the Stomach Tube. Collected Papers of the Mayo Clinic, 14:13, 1922.

Graham, E. A., and Cole, W. H.: Roentgenologic Examination of the Gall Bladder. J. A. M. A., 82: 613. (Feb., 23), 1924.

Masson, J. C.: Diverticulitis of the Large Bowel. Collected Papers of the Mayo Clinic, 12: 160, 1920.

Moynihan, Sir Berkeley: Essays on Surgical Subjects. 1921, page 67.

Rosenow, Edward C.: Focal Infection and Localization of Bacteria in Appendicitis, Ulcer of the Stomach, Cholecystitis, and Pancreatitis. Collected Papers of the Mayo Clinic, 13:118, 1921.

PUBLIC HEALTH NOTES

EDITOR J. W. AMESSE, M.D.

On June 12, in Salt Lake City, the opening session of the First Annual Meeting of the Western Branch of the American Public Health Association was held with President Wm. C. Hassler in the chair. This meeting starts a new epoch in the history of Public Health in the West. With the exception of New Mexico every state from the Rocky Mountains west to the Pacific Coast sent representatives, among them the health officers of half a dozen states and the health officers of several of the largest cities in the region, including Los Angeles, San Francisco, Seattle and Denver. The University of California sent Dr. K. F. Meyer, Director, Hooper Foundation for Medical Research; Dr. A. C. Reed, Director, Pacific Institute of Tropical Medicine, Hooper Foundation; Dr. J. C. Geiger, also of the Hooper Foundation; Dr. Guy S. Millberry, Dean, University of California College of Dentistry, and Dr. Langley Porter, dean of the Medical School, University of California. The United States Public Health Service sent four representatives, Stanford University two and the state of Colorado two. From Hawaii came Dr. F. S. Trotter, health officer of the Territory; from Victoria, B. C., came Dr. C. P. Brown, federal quarantine officer in charge of the William Head quarantine station, and from Vancouver, Dr. H. W. Hill, professor of bacteriology at the University of British Columbia.

The scientific sessions covered the epidemiology of meningitis, undulant fever, Rocky Mountain spotted fever and tuberculosis, and other important public health problems appropriate to a western conference.

The symposium on the sanitary aspects of the proposed Boulder Dam included three papers: "The Sanitary Engineering Aspect," by L. B. Reynolds, professor of hydraulic and sanitary engineering, Stanford University; "The Immigration Aspect," by Dr. Fred T. Foard of the United States Public Health Service, and "Waste and Sewage Disposal Problem," by Harry Hommon, sanitary engineer, U. S. P. H. S.

In its business sessions the organization adopted a constitution and by-laws, and elected the following officers: President, Wm. C. Hassler, M.D., San Francisco; first vice-president, E. H. Hanley, M.D., Seattle; second vice president, George Parrish, M.D., Los Angeles; third vice president, T. B. Beatty, M.D., Salt Lake City; secretary, W. P. Shepard, M.D., San Francisco; treasurer, Claude B. Higby, M.D., Los Angeles.

On the Regional Board Colorado was given one representative; Seattle was selected for the 1931 meeting and the recommendation made by the Regional Board that Denver be given first consideration for 1932.

From first to last the meeting was marked by a splendid spirit of co-operation. It is earnestly desired that more doctors in the Colorado district join the association.

J. J. W.

LIBRARY NOTES

EDITOR J. J. WARING, M.D.

On the evening of May 29, Dr. Charles Singer, professor of the history of the medical sciences at the University of London, addressed the Medical Society of the City and County of Denver on "Leonardo de Vinci as Man of Science." It was unfortunate that this splendid address could not have been given on the evening of a regular meeting of the society. On any other evening it seems impossible to secure a good attendance, no matter how attractive the offering may be. Dr. Singer's address was beautifully illustrated with lantern slides, punctuated with crisp, illuminative remarks and delivered with rare charm.

On Friday evening, May 30, Mrs. Singer gave a most interesting address on "Alchemy" before the faculty of the Medical Department of the University of Colorado.

BOOK REVIEWS

The Medical Clinics of North America. (Issued serially, one number every other month.) Volume 13, No. 4. (Philadelphia Number, January, 1930), Octavo of 301 pages, illustrated. Per Clinic Year, July, 1929, to May, 1930. Paper, $12.00; cloth, $16.00 net. Philadelphia and London: W. B. Saunders Company.

These clinics as a volume are superior in that practically every subject discussed is supplemented by a complete and live bibliography.

Dr. George M. Piersol calls our attention to the fact that typhus fever (Brill's Disease) occurs sporadically in America. He catalogs the points in its differential diagnosis from typhoid.

Rheumatic conditions are discussed by Dr. William E. Robertson under the caption of The Etiology and Pathology of Arthritis, (2) Dr. William D. Stroud, The Treatment of Rheumatic Cardiovascular Disease in Children, and (3) Dr. James Craig Small, Streptococci in Relation to Rheumatic Disease. The latter paper emphasizes the role of: (a) Bacteria in the tissues; (b) Bacterial toxins in the tissues; (c) Tissue allergic reactions. He contends that the types of the condition depend upon the dominance of one of these three tissue reactions, but the primary cause is always the same.

Nephrosis is discussed by Drs. James E. Talley and H. R. Glenn, and by Dr. James E. Cottrell, the former reporting a case due to phenolphthalein poisoning and the latter citing three cases in which nephritis and nephrosis were mixed.

The clinic of Drs. Charles C. Wolferth and Francis C. Wood on angina pectoris is unusually clear and comprehensive. They marshal the pros and cons of the coronary and arterial hypotheses. They also emphasize the differential points of diagnosis, helping to separate such lesions as coronary occlusions, gall bladder disease and certain types of gastric pathology.

Hemorrhagic conditions are discussed by Dr. Thomas Fitz-Hugh, Jr. Drs. Steinfield and Shay report a case of gastric carcinoma complicated by thrombocytopenic purpura. Dr. Harold W. Jones discusses purpura with particular reference to essential thrombocytopenia.

Special mention should also be made of the papers on the relative accuracy of cholecystography and nonsurgical biliary drainage in the diagnosis of gallstones; failure of salt restriction in the treatment of hypertension; differential diagnosis of rheumatic and bacterial endocarditis; monocytic leukemia; chronic non-tuberculous pulmonary disease; primary anemia with improvement in nerve symptoms upon liver diet; analysis of cardio-vascular-renal disease from the standpoint of accurate diagnosis; unusually distended bladder simulating ascites; hypoglycemia hazards in the treatment of diabetes mellitus, etc.

C. F. KEMPER.

Medical Information in Sickness and Health. By Philip Skrainka, M.D., formerly Editor of "Medicine and Surgery," etc. Foreword by W. A. Newman Dorland, A.M., M.D., F. A. C. S., Professor of Gynecology and Obstetrics and Head of the Department of Obstetrics in the Post-Graduate Medical School of Chicago; Author of "The American Illustrated Medical Dictionary, etc. Cloth. Pp. 577. New York: Coward-McCann, Inc., New York, 1929.

The scope of this book is broad, including the important diseases of the various fields of medicine. Innumerable diseases and disorders, including the various systems of the body have been reduced to such simple description as to be understood by the non-medical mind. Relative values of the symptomatology of even the most intricate and complex diseases are interpreted so that their connection with serious or inconsequential processes is distinguished. Consequently by this means it serves not only as a guide to the kind of medical service, general or special, which should be sought, but also as a means of alleviating the apprehension so frequently produced by disconcerting yet insignificant symptomatology. On the other hand, the author's broad medical conception has been definitely shown in the opposite direction by the continuous advice to the reader throughout; to apply always to reputable medical service for relief of those complaints indicating the onset of serious disease. As stated by the Journal of the American Medical Association "this book debunks many of the current health fads." While the work is written primarily for the laity, the information contained therein may be perused advantageously by the entire profession. It cements the relation between the doctor and the public by explaining just when the physician needs to be called, and, in the case of emergency, what to do until he gets there. It discourses also on social medicine and the philosophy of health and disease. It is orthodox and authoritative and discloses many of the fallacies of the current health fads. The book in no way attempts to supplant the work of the physician but is the most up-to-date reference to the laity to the worth of the legitimate medical profession. The author has treated the difficult subject in a simple and engaging style. The technical make-up is good, the print is large and clear. The book is attractive and thoroughly instructive to the general practitioner and offers authoritative information for the laymen. W. ENGELBACH.

PROGRAM

Sixtieth Annual Session

COLORADO STATE MEDICAL SOCIETY

Pueblo, Colorado, September 9, 10, 11, 1930

Offical Call

To the Officers, Delegates, Committeemen and Members of the Colorado State Medical Society; Greeting:

The Sixtieth Annual Session of The Colorado State Medical Society will be held in Pueblo, Colorado, Tuesday, Wednesday and Thursday, September the Ninth, Tenth and Eleventh, Nineteen Hundred and Thirty.

The House of Delegates Will Convene at Eight P. M., Monday, September the Eighth, and Subsequently as Ordered.

The General Scientific Assembly Will Convene at Nine A. M., Tuesday, September the Ninth and Subsequently According to the Program.

WILLIAM SENGER, M.D.,
President.

Attest: HARVEY T. SETHMAN,
Executive Secretary

SCIENTIFIC PROGRAM

TUESDAY, SEPTEMBER 9

9:00 a m.—Ballroom of the Congress Hotel.

Call to order by President William Senger.

Installation of President William Alfred Kickland.

"Preoperative Care of Surgical Cases."
LOWELL B. LITTLE, M.D., Fort Collins.
Discussion to be opened by G. C. Cary, M.D., Grand Junction.

"Symposium on Postoperative Lung Complications with Special Reference to Atelectasis." (Six ten-minute papers followed by general discussion.)

(a) "Physiology."
HENRY SEWALL, M.D., Denver.

(b) "Pathology of Atelectasis and Its Relation to Pulmonary Infection."
WILLIAM C. JOHNSON, M.D., Denver.

(c) "X-Ray Diagnosis."
KENNETH D. A. ALLEN, M.D., Denver.

(d) "Differential Diagnosis."
W. BERNARD YEGGE, M.D., Denver.

(e) "Treatment."
PAUL J. CONNOR, M.D., Denver.

(f) "Bronchoscopic Diagnosis and Treatment."
T. E. CARMODY, M.D., Denver.

Discussion to be opened by Leonard Freeman, M.D., Denver, and C. E. Tennant, M.D., Denver.

Ten-minute intermission.

"Recent Accomplishment and Future Prospect in Tuberculosis Research."
ESMOND R. LONG, M.D., Department of Pathology, University of Chicago.
Discussion to be opened by J. J. Waring, M.D., Denver.

1:00 p. m.—Adjournment. (Note: There will be no general meeting Tuesday afternoon.)

3:00 p. m.—Clinic; Corwin Hospital.

"Fracture Reduction under Local Anesthetic."
C. R. G. FORRESTER, M.D., Chicago. (Note: Detailed arrangements for this clinic are subject to change and will be finally announced at the Tuesday morning general meeting.)

8:00 p. m.—Auditorium of the Centennial High School. (Open to the public.)

"The Doctor in Politics."
HUBERT WORK, M.D., Pueblo.

WEDNESDAY, SEPTEMBER 10

9:00 a. m.—Ballroom of the Congress Hotel.

"The Indications for Ganglionectomy and Trunk Resection in the Treatment of Peripheral Vascular Diseases."
ALFRED W. ADSON, M.D., Mayo Clinic, Rochester, Minn.

"Spinal Anesthesia." (Two ten-minute papers.)
CLYDE J. COOPER, M.D., Denver.
EDWIN G. FABER, M.D., Denver.
Discussion to be opened by William W. Haggart, M.D., Denver.

"Efficient Fracture Support."
GEORGE W. MIEL, M.D., Denver.
Discussion to be opened by Thomas A. Stoddard, M.D., Pueblo.

"Effect of General Anesthesia on Arrested Cases of Moderately Advanced Pulmonary Tuberculosis."
ROY L. GLEASON, M.D., Fort Collins.
Discussion to be opened by O. M. Gilbert, M.D., Boulder.

12:00 noon.—Adjournment.

2:00 p. m.—Ballroom of the Congress Hotel.

Presidential Address.
WILLIAM ALFRED KICKLAND, M.D., Fort Collins.

"Diabetes and the Country Doctor."
CHARLES H. PLATZ, M.D., Fort Collins.
Discussion to be opened by C. F. Kemper, M.D., Denver.

"Ophthalmia Neonatorium."
C. A. RINGLE, M.D., Greeley.
Discussion to be opened by J. J. Pattee, M.D., Pueblo.

"Practical Obstetrics Outside of the Hospital."
CARBON GILLASPIE, M.D., Boulder.
Discussion to be opened by Gerrit Heusinkveld, M.D., Denver.

"Is the Present Public Health Program Adequate?"
C. E. HARRIS, M.D., Woodmen.
Discussion to be opened by C. O. Giese, M.D., Colorado Springs, and Leo W. Bortree, M.D., Colorado Springs.

"The Eyes in Aviation."
JOHN S. CHASE, M.D., Denver.
Discussion to be opened by W. C. Finnoff, M.D., Denver, and Maj. W. W. Vaughan, M.D., Fitzsimons General Hospital, Aurora.

5:00 p. m.—Adjournment.

THURSDAY, SEPTEMBER 11

9:00 a. m.—Ballroom of the Congress Hotel.

"Treatment of Cancer of the Lower Lip." (Illustrated.)
ELLIS FISCHEL, M.D., St. Louis, Mo.
Discussion to be opened by Sanford Withers, M.D., Denver.

"Coronary Thrombosis." (Illustrated.)
CLOUGH T. BURNETT, M.D., Denver.
Discussion to be opened by Royal H. Finney, M.D., Pueblo.

"Causes of Fever in Cancer."
WILLIAM A. CAMPBELL, JR., M.D., Colorado Springs.
Discussion to be opened by M. O. Shivers, M.D., Colorado Springs.

"Some Newer Concepts of Gall Bladder Disease."
JOHN A. WOLFER, M.D., Associate Professor of Surgery, Northwestern University, Chicago, Ill.
Discussion to be opened by George H. Curfman, M.D., Salida.

"Vincent's Angina."
FRED J. PEIRCE, M.D., Pueblo.
Discussion to be opened by Frank R. Spencer, M.D., Boulder.

"Physical and Mental Changes Following Skull Injuries."
LEO V. TEPLEY, Denver.
Discussion to be opened by Edward Delehanty, M.D., Denver.

1:00 p. m.—Sine Die Adjournment.

Communications relating to the scientific program, scientific exhibits, and x-ray exhibits should be addressed to the nearest member of the following committees or in care of Harvey T. Sethman, Executive Secretary, 466 Metropolitan Building, Denver, Colo.

Committee on Scientific Work: Maurice H. Rees, M.D., Denver, Chairman; Crum Epler, M.D., Pueblo; Carbon Gillaspie, M.D., Boulder.

Sub-committee on Scientific Exhibits: E. D. Downing, M.D., Woodmen, Chairman; F. M. Heller, M.D., Pueblo; E. R. Mugrage, M.D., Denver.

Sub-committee on X-Ray Exhibits: George A. Unfug, M.D., Pueblo, Colo., Chairman; K. D. A. Allen, M.D., Denver.

ENTERTAINMENT PROGRAM

TUESDAY, SEPTEMBER 9

1:30 p. m.—Pueblo Country Club.

Complimentary luncheon to members and guests of the Colorado State Medical Society by the Pueblo County Medical Society.

1:30 p. m.—Minnequa Club.

Complimentary luncheon to members and guests of the Woman's Auxiliary to the Colorado State Medical Society by the Woman's Auxiliary to the Pueblo County Medical Society.

2:30 p. m.—Pueblo Country Club.

Annual Golf Tournament for members of the Colorado State Medical Society.

WEDNESDAY, SEPTEMBER 10

6:00 a. m.—Pueblo Gun Club.

Complimentary trap shoot breakfast to members and guests of the Colorado State Medical Society and their ladies given by the Pueblo County Medical Society.

12:30 p. m.—Congress Hotel.

Annual luncheon of constituent society secretaries and state officers.

2:30 p. m.—Pueblo Country Club.

Annual Golf Tournament for members of the Woman's Auxiliary to the Colorado State Medical Society.

6:45 p. m.—Pueblo Country Club.

Reception to the president and officers of the Colorado State Medical Society.

7:00 p. m.—Pueblo Country Club.

Annual official subscription banquet for members and guests of the Colorado State Medical Society and their ladies.

Communications relating to the entertainment program, golf tournament, and hotel reservations should be addressed to the chairmen of

the following committees or in care of Harvey T. Sethman, Executive Secretary, 466 Metropolitan Building, Denver, Colo.

Committee on Arrangements: W. F. Singer, M.D., Pueblo, Chairman; R. H. Finney, M.D., Pueblo; Harold T. Low, M.D., Pueblo; George E. Rice, M.D., Pueblo.

Committee on Golf Tournament: Harold T. Low, M.D., Pueblo, Chairman; J. W. Thompson, M.D., Pueblo; J. F. Snedec, M.D., Pueblo.

GENERAL NOTICES

House of Delegates—All meetings of the House of Delegates will be held in the ballroom of the Congress Hotel. The first meeting will be called to order at 8:00 p. m., Monday, September 8.

Council; Trustees; Committees—Rooms will be provided on the second floor of the Congress Hotel adjoining the ballroom for meetings of the Council, Board of Trustees and Committees throughout the session.

General Meetings—All general scientific meetings will be held in the ballroom of the Congress Hotel except the Tuesday evening meeting which will be held in the auditorium of the Centennial High School and will be open to the public.

Exhibits, Scientific—Scientific exhibits will be placed in the Lion's Den of the Congress Hotel, reached through the San Isabel lobby.

Exhibits, Commercial—Commercial exhibits will be placed in the San Isabel lobby of the Congress Hotel, and entrance to the ballroom, general meetings, scientific and x-ray exhibits will be through this lobby.

Registration—The registration booth will be placed in the San Isabel lobby of the Congress Hotel and will be open Monday, September 8, from 6:00 to 9:00 p. m.; Tuesday and Wednesday, September 9 and 10, from 7:30 a. m. to 5:00 p. m.; Thursday, September 11, from 7:30 a. m. to 12:00 noon.

Secretaries—Secretaries of constituent societies should make a special effort to attend the secretaries' luncheon-meeting at the Congress Hotel at 12:30 p. m., Wednesday, September 10.

Solicitations—By order of the Board of Trustees, the Society will not permit business solicitation of its members at the annual session by any person or firm except those using commercial exhibit space or under advertising contract with Colorado Medicine. All persons not thus excepted will be denied admission.

COMMERCIAL EXHIBITORS

Firms with whom commercial exhibit contracts have been signed to date are listed below. These firms are contributors to the financial success of the annual session and merit a visit at their booths from every member attending the meetings:

George Berbert & Sons, Denver.
Denver Fire Clay Company, Denver.
General Electric X-Ray Co., Chicago.
Horlick's Malted Milk Corporation, Racine, Wis.
Kelley-Koett X-Ray Co., Inc., Covington, Ky.
Mead Johnson & Co., Evansville, Ind.
Muckle X-Ray Co., Denver.
Petroclagar Laboratories, Inc., Chicago.
Physicians & Surgeons' Supply Co., Denver.
Charles B. E. Taylor, Denver.

HOUSE OF DELEGATES

Society	*Delegates*	*Alternates*
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Boulder	C. W. Bixler	C. D. Bonham
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Chaffee	C. R. Fuller	G. W. Larimer
Crowley	J. A. Hipp	S. A. Bryan
Delta	L. L. Hick	A. C. McClanahan Lee Bast
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"	Frank E. Rogers	Philip Hillkowitz
"	H. R. McKeen	William T. Brinton
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Larimer	P. J. McHugh	S. A. Joslyn
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Las Animas	B. B. Beshoar	James G. Espey
Mesa	G. C. Cary	C. W. Reed
Montrose	C. G. Brethouwer	C. E. Lockwood
Morgan	H. M. Hawthorne	F. W. Lockwood
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Northwestern	B. M. Bailey	E. M. Morrow
Otero	R. S. Johnston	B. Franklin Blotz
"	Ward C. Fenton	J. R. Gaines
Prowers	N. M. Burnett	R. J. Rummell
Pueblo	Harold T. Low	C. N. Caldwell
"	R. C. Robe	George P. Pipkin
"	George M. Myers	George E. Rice
San Juan	A. L. Burnett	B. F. Walters
San Luis Valley	L. L. Herriman	J. R. Hurley
Weld	H. W. Averill	O. F. Broman
"	E. W. Knowles	A. C. McCain

Secretarial Notes and Comment

Edited by Harvey T. Sethman, Executive Secretary

"HEALTH" LECTURES

APROPOS of the editorial published in this issue entitled "Methodist Morality" is the following letter, composed by the Committee on Public Policy on June 6 and addressed to the Rev. Dr. Martin E. Anderson, president of the Denver Ministerial Alliance. Despite correspondence a year ago between Dr. C. F. Kemper, then editor of Colorado Medicine, and the Rev. A. H. C. Morse, pastor at that time of the First Baptist Church, and despite the assurance that at least one church would no longer allow such practices within its walls, the Committee on Public Policy felt that action should be taken by the entire Ministerial Alliance. The committee has not to date received an answer to its letter, but when and if an answer is received, it will be published in Secretarial Notes.

The letter follows:

Dear Dr. Anderson:

We wish to call formally to the attention of your Alliance a practice of the down-town churches which we deem dangerous to public health and decidedly not in keeping with either the letter or spirit of the service to which these churches are dedicated. This is the practice of renting the church buildings to alleged "doctors" and "Professors" who expound fake health doctrines, advertise spurious medicines, promote worthless and dangerous diet fads, and sell books of a questionable character.

You would not allow your churches used for the promotion of fake oil stock, used by confidence men selling gold bricks, or by bootleggers selling liquor. We fail to see any dividing line in a distinction between such individuals and the "lecturers" now permitted to use your buildings. The educated layman knows as well as does the practicing physician that these "lecturer's" wares are as nefarious as those of the gold-brick salesman or fake stock promoter. Their advertising literature by innuendo often appeals to those seeking "the return of lost manhood" and increased sexual activity. Their "medicine" often is alcoholic beverage thinly and dangerously disguised by the introduction of just enough drugs to make it salable under the liquor laws.

The medical profession does not recognize such "lecturers" as competitors, legitimate or illegitimate. On the contrary such "lecturers" provide the medical profession with additional work and additional income because of the harm done to the health of those persons who temporarily adopt the false health doctrines promoted. We protest the practice of renting church buildings to such men primarily because the practice tends to hold back the advancement of public health, and the advancement of public health is one of the highest ideals of the organized medical profession. We believe that with this situation before your Alliance you will exercise your power and influence to condemn the practice and forbid it in the churches under your supervision.

Speaking for the entire medical profession of Colorado, our committee requests your serious consideration of this matter. We trust we may have an early reply so that we may inform the profession generally of your attitude through our official publications.

Sincerely,
COMMITTEE ON PUBLIC POLICY,
By HARVEY T. SETHMAN.

AN INSULT TO COLORADO

RACKETEERS, a big-city menace of the decade, ordinarily keep their activities outside the realm of organized medicine. But recently the profession in Colorado as represented by the officers and committees of the Colorado State Medical Society, accepted as an insult and challenge to the entire profession an outrageous attack perpetrated in Kansas City, Mo., upon Dr. and Mrs. John R. Espey while the couple were en route east to the American Medical Association annual meeting.

Briefly, the facts as published in the Kansas City Star and verified by the Kansas City Chamber of Commerce and the medical profession were substantially as follows:

Dr. and Mrs. Espey stopped their automobile behind a red traffic light in Kansas City, and noticed that their car was slightly bumped from the rear. After an inspection to see that no damage was done to either car, Dr. Espey drove on. He was crowded to the curb by the other car and its two occupants, brothers operating a small clothing store in Kansas City, Kan., demanded $50. Dr. Espey refused, whereupon the two men attacked both him and Mrs. Espey, striking both of them. Dr. Espey resisted, pushed the men off the running boards of his car, and again drove on. He was soon again crowded to the curb by the other car. Police were called and the matter reached the North Side Court of Kansas City, where the magistrate very properly dismissed the demand for damages made against Dr. Espey by the two brothers, and severely reprimanded the men for discourtesy. Dr. Espey, believing the matter settled, prepared to continue his trip only to find that the same two offenders had filed a damage action in another court, referred to by the Kansas City Star in scathing language as a "jackrabbit justice court." This time Dr. Espey's car had been attached, the two brothers alleged a wholly different sort of accident which had never occurred, and the suit demanded $500 damages from the

doctor. Dr. Espey had to post $1,000 cash bond guaranteeing his appearance at trial before he could leave Kansas City to keep his appointments.

Correspondence that would fill many pages of Colorado Medicine carried the indignant protest of the Colorado profession to Kansas City as soon as word of the affair reached our executive office. A number of Denver men addressed personal appeals to friends prominent in the Kansas City profession. Through the Committee on Public Policy and the executive secretary representations were made to the American Medical Association, the Missouri State Medical Society headquarters at St. Louis, the Jackson County Medical Society at Kansas City, the Kansas City Chamber of Commerce, and Kansas City newspapers. All those addressed in Kansas City rallied instantaneously to Dr. Espey's defense, which in this case was also the defense of the Colorado medical profession and the defense of the honor of Kansas City. At this writing the combined effort of these many agencies seems to have promised settling the matter as satisfactorily as possible so far as Dr. Espey's immediate difficulties are concerned. The final result still to be sought is the teaching of a well-earned lesson to those who apparently make a business of victimizing visitors in large cities, and especially teaching them that the honored representatives of the organized medical profession must be respected in both their persons and their property.

To name the doctors in Kansas City who have given their time and energy to this fight would be to publish almost the entire membership list of the Jackson County Medical Society, which held special meetings of its trustees in connection with the case. To them all, to the officers of the American Medical Association, the Missouri State Medical Society, the Kansas City Chamber of Commerce, the Kansas City Star, and others who have helped, we extend the sincere thanks of the Colorado State Medical Society.

* * *

PUEBLO PLANS

The following "open letter" to our membership reaches the executive office from Dr. W. F. Singer, chairman of the Committee on Arrangements for the Sixtieth Annual Session. If you fail to read it, you will be the loser!

Ladies and Gentlemen of the Profession:

Pueblo entertains again! After ten years of waiting we are permitted again to extend to you not only our good right hand, but the best of everything we have. We look forward to your coming—all of you—September 9, 10 and 11.

The Committee on Scientific Work has worked out an excellent scientific program, which you see elsewhere in this issue of Colorado Medicine. We of the entertainment committee, with the solid backing of the Pueblo County Medical Society, assure you that you haven't seen anything yet! If you don't believe it, come and see.

We will give you another of those trap-shoot breakfasts at 6 o'clock in the morning; a careful, expert gunman at each peg; some very unusual target features; the finest breakfast you ever sunk a tooth into. Lots of prizes, especially for the ladies.

The Tuesday luncheon will have some unique features. If you don't come you'll wish you had.

The president's reception and banquet will naturally be the big event. This will differ entirely from former functions; there are surprises for all of you.

For hotel reservations, write to me personally. Write early because the attendance will be large, and tell whether you want hotel, boarding house, or private home reservations, how many will be with you, and how long you will stay. We will make every effort to house you happily for the biggest event of the year.

We want the ladies and the other members of doctors' families to get this special message—that no one will be left out of the entertainment plans, and that there will be special atractions for everyone, spontaneous, cordial, different.

We are too modest to remind you that there is one town where you always feel right at home, but it's Pueblo! Make your plans now. Don't delay. And address all communications concerning reservations to the undersigned.

FREDERIC SINGER, M.D., Chairman,
114 West 9th St., Pueblo, Colorado.

MEDICAL SOCIETIES

This department of Colorado Medicine is set aside for reports of recent meetings, announcements of future meetings and accounts of other important activities of the county and district societies, composing the Colorado State Medical society. Every meeting of every local society should be reported. If your society is not represented, see that your secretary reports the next one, or that some other member is appointed to the task. Other societies want to know what your society is doing.

* * *

Larimer County Medical Society

The June meeting of the Larimer County Medical Society was held June 4 at the Estes Park Country Club. Dentists of Larimer County and wives of the doctors and dentists were guests.

After dinner the ladies adjourned to another room and organized an Auxiliary to the Medical Society, while the regular business meeting was held.

Minutes of the April and May meetings were approved. The secretary reported a meeting of the Collections committee with a similar committee of the Weld County Medical Society, stating that that society is eager to organize a collection society as rapidly as possible. Drs. Gasser and Brown discussed the matter and advised delay. Drs. Carroll, Adams and Hoit read papers on Vincent's Angina. Discussion

was led by Dr. Haughey and participated in by Drs. Alexander, Gasser, Hartshorn and Platz and closed by the essayists.

By-laws of the Society provide for no further meetings until September.

LOWELL B. LITTLE,
Secretary.

* * *

San Luis Valley Medical Society

Dr. C. F. Kemper of Denver was the guest speaker at the June meeting of the San Luis Valley Medical Society, held Saturday evening, June 21, at Monte Vista. Dr. Kemper's paper was entitled "The Management of Diabetic Patients," and was deeply appreciated by all members attending. Dr. E. K. Carmichael, vice president, presided in the absence of Dr. Clarence A. Smith, who is in Europe for the summer. The Society accepted the resignation of Dr. Reginald B. Weiler of Del Norte. The meeting was preceded by a dinner at the American Cafe.

SIDNEY ANDERSON,
Secretary.

Obituary

Dr. Joseph Benjamin Finucane

In the passing of Joseph Benjamin Finucane, June 19, Colorado lost a good citizen and our profession one of its best members.

Born in Menden, N. Y., in 1863, in early youth he decided to devote himself to medicine, graduating from the Medical Department of the University of Buffalo. Coming west in 1894, he settled in Colorado at Idaho Springs and there shared the lot of mountaineer physicians, ever ready and often called to meet needs at personal sacrifice. In 1897 he married Maude Montague, daughter of Harrison Montague, intimately identified with the earliest development of Idaho Springs. Health officer of this community a number of years and engaged in practice, Dr. Finucane took over these widely known springs and furthered them in extensive improvement. Subsequently the Finucanes made their home in Denver.

Endowed with qualities that make the good physician, cordial, modest, generous, giving of himself freely to his work in accord with the best traditions of his profession, he will be long and kindly remembered.

Dr. Finucane was for many years a member of both County and State Medical Societies.

G. W. M.

Dr. John William Higgins

John W. Higgins, pioneer physician of Denver, was born in 1856 in Bentonville, Ohio. His early schooling was obtained near his home, and in 1881 he was graduated from the Medical College of Ohio at Cincinnati. After practicing for a short time near his original home he moved to Denver, which became his permanent home. He was one of the early members of the faculty of the old Gross Medical College in Denver and was continuously a member of the Denver and State Medical Societies. He served as city physician for Denver under two administrations. He was active in fraternal affairs and was a member of the Scottish Rite Masonic bodies, the Shrine, and the Woodmen of the World. At the time of his death, June 14, 1930, he was a member of the staff of Presbyterian Hospital.

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE AND HOSPITALS

A certain number of patients who attend the Out-Patients' clinics, which have been previously described, need hospital care. These cases are referred to the Social Service Department which arranges for such care. Not all cases enter the Colorado General or Psychopathic Hospitals, for definite laws are in existence which govern the rules for admission. These rules have been drawn up by the Board of Regents of the University of Colorado, whose members are elected by the voters of the state.

The determination of admission to these hospitals is: First, only citizens of this state are eligible; second, only persons unable to pay for private care are eligible. Cases as they are admitted fall in certain groups. First are those individuals who are certified by the various Boards of County Commissioners as worthy and entitled to care. A certain portion of the per diem cost is charged back against the county sending the patient.

Cases on recommendation of the Social Service Department may be admitted who are able to pay all or part of the per diem charges, but who would not be able to pay a private physician in addition to the hospital care. Many of these cases are referred to the hospitals by the physicians of the state, as worthy of such care. In addition certain cases which are of value for teaching may be admitted free.

Every attempt is made to prevent the use of these hospitals by those not entitled to such care, and any physician who knows of any such abuse should feel it is his duty to notify the Superintendent.

The activities of these hospitals are state wide, and not limited to any region. Primarily they are designed for teaching, and this function covers both undergraduate and postgraduate instruction, and all cases admitted are considered as material for teaching.

All cases admitted to the General Hospital and many of those admitted to the Psychopathic Hospital are assigned to Senior students for clinical study. They are required to obtain the history and make a physical examination, independent of the house and visiting Staffs, unless the condition of the patient is contraindicative.

Illustrative cases are used by members of the Staff for teaching, both in the clinical amphitheatre before the entire senior or junior classes; or in the ward walks when the various sections, medicine, surgery, gynecology, obstetrics, etc., are quizzed. Members of these groups follow their assigned cases, keep progress notes and carry out the routine laboratory work. They act as assistants when operative procedures become necessary, and assist in delivery of obstetrical cases assigned to them.

An autopsy is obtained on all possible cases

dying in either institution, and the student to whom the case was assigned assists at the autopsy and reports on the histologic examination of tissues removed.

Correlation of the laboratories with the clinical work is emphasized, whereby the purely theoretical studies of the first years of medicine are shown of practical value, also that laboratory procedures may assist in diagnosis.

In the above manner students are taught the care of hospital cases as they may come to him in future years. Diagnosis and treatment are conducted along scientific lines, and the use of all practical measures are carried out. In the Psychopathic Hospital an opportunity is given the students to follow modern diagnosis and treatment of neurologic and psychiatric cases, afforded by only a few of the leading schools of medicine.

Since these hospitals are designed to care for those who require a relatively short stay, three to four weeks as a maximum, certain types of cases are not admitted. Among these cases are those suffering from incurable maladies, chronic conditions, and tuberculosis. Cases of these types are seen by the students in the Out-Patients' clinics before they become bedfast; either at home, or in some institution. Facilities are given the students to study tuberculosis in its many forms at the National Jewish Hospital, Denver General Hospital, and certain surgical forms at the Colorado General Hospital.

Another function which the two hospitals perform is practical instruction to the students in the School of Nursing. This instruction covers three years, and rotates through the various services of both hospitals. In that way the girls learn to care for various types of cases encountered in general and special nursing.

The many aids to diagnosis and treatment, radiology, physical therapy, the various laboratories, electrocardiography and others are available. Since these are teaching institutions perhaps greater use is made of these agents than is usual in the private hospitals. Complete records are kept for each case, and these are filed in the record rooms, indexed and cross indexed for possible subsequent use. Both institutions are accredited, and the General Hospital is listed as satisfactory for intern training. Both are also accredited for residencies.

All the above activities, however, are dependent on the personnel of the Staffs and their coordinating workers in the hospital departments. The teaching faculty of the Schools of Medicine and Nursing are closely linked with the Visiting Staff of the General Hospital, and the permanent Staff of the Psychopathic Hospital. Two resident physicians and a corps of internes are on constant duty in the General Hospital. The total number of the physicians thus number approximately one hundred and fifty, available for teaching in one way or another. The majority are in general practice or one of the specialties in Denver and vicinity, and many are well known for their medical attainments. Thus, in buildings, equipment and personnel, these hospitals function as efficient teaching units of the Schools of Medicine and Nursing.

E. R. MUGRAGE.

COLORADO NEWS NOTES

BOULDER—Dr. I. D. Bronfin of Denver addressed the Boulder Lions' Club June 4 on the subject "Experiments and Accomplishments of the National Jewish Hospital for Tuberculosis."

BOULDER—Dr. Frank R. Spencer took part in the program of the American Medical Association at Detroit with a paper on infections of the skull bones following infections of the nasal sinuses, before the nose and throat section.

COLORADO SPRINGS—Dr. B. E. McGovern, senior resident physician at the Union Printers' Home, has resigned to enter private practice in Colorado Springs.

DELTA—Dr. Harry A. Smith, who left Delta a year ago to practice in Whittier, Calif., has returned to Delta for the summer months. While here he will take over the practice of Dr. Lee Bast who is taking an extended vacation.

DENVER—Dr. Hubert Work took part in the commencement exercises of the University of Pennsylvania School of Medicine, June 13, and attended the reunion of his class, graduated in 1885.

DENVER—Dr. C. F. Eakins of Brush and Miss Grace V. Gibson of Fort Morgan were married June 11 at the Cosmopolitan Hotel. The Rev. W. T. Scott of the Cameron Methodist Episcopal Church performed the ceremony. Miss Zethel Eaton of Taylorville, Ill., and Dr. C. Howard Darrow of Denver attended the couple. After a wedding dinner the couple left for a honeymoon in Arizona. They will make their home in Brush.

HAYDEN—Dr. D. L. Whittaker is taking a two months' vacation in the East visiting various clinics.

PUEBLO—Dr. Jesse W. White is spending a month in St. Louis taking a special post-graduate course at Washington University.

WOMAN'S AUXILIARY

Larimer County

Wives of members of the Larimer County Medical Society met June 4 at Estes Park and organized an auxiliary under the name Auxiliary to the Larimer County Medical Society. Mrs. T. Clarkson Taylor of Fort Collins was elected president; Mrs. Magnus Stewart of Loveland, vice president; and Mrs. Thadd C. Brown of Fort Collins, secretary-treasurer. The new auxiliary will begin its activities in September.

Dear Doctor:

You own me. You want me to prosper and grow. The surest way you can help me is to let my advertisers know that their message has reached you. Use my name when writing them.

Sincerely,

COLORADO MEDICINE.

THE COLORADO STATE MEDICAL SOCIETY

OFFICERS, 1929-1930

President, William Senger, Pueblo.
President-elect, W. A. Kickland, Fort Collins.
Vice-Presidents, 1st, John B. Crouch, Colorado Springs; 2nd, Burgett Woodcock, Greeley; 3rd, Charles E. Condon, Leadville; 4th, E. H. Munro, Grand Junction.
Secretary, F. B. Stephenson, Denver.
Executive Secretary, Mr. Harvey T. Sethman, 466 Metropolitan bldg., Denver; telephone KEystone 0870.
Treasurer, L. W. Bortree, Colorado Springs.
Delegates to the American Medical Association: Senior, J. W. Amesse, Denver, term expires 1930; Alternate, L. H. McKinnie, Colorado Springs, term expires 1930; Junior, John R. Espey, Trinidad, term expires 1931; Alternate, J. J. Waring, Denver, term expires 1931.

Councilors:

		Term expires
District 1.	Ella A. Mead, Greeley	1930
District 2.	G. P. Lingenfelter, Denver	1934
District 3.	Geo. D. Andrews, Walsenburg	1933
District 4.	W. W. Crook, Glenwood Springs	1931
District 5.	A. J. Nossaman, Pagosa Springs	1932

Constituent Societies, Times of Meeting, 1930 Secretaries

Arapahoe County—Last Monday of each month; secretary, V. G. Jeurink, Littleton.

Boulder County—Second Thursday; secretary, Margaret L. Johnson, Boulder.

Chaffee County—First Tuesday of each month; secretary, G. W. Larimer, Salida.

Crowley County—Second Tuesday of each month; secretary, J. A. Hipp, Olney Springs.

Delta County—Last Friday of each month; secretary, A. F. Erich, Delta.

Denver County—First and third Tuesday of each month; secretary, C. H. Darrow.

El Paso County—Second Wednesday of each month; Secy., W. A. Campbell, Jr., Colo. Springs.

Fremont County—Fourth Monday of each month; secretary, Archie Bee, Canon City.

Garfield County—Last Thursday of each month; secretary, R. B. Porter, Glenwood Springs, Colo.

Huerfano County—Third Thursday of each month; secretary, J. M. Lamme, Walsenburg, Colo.

Kit Carson County—Quarterly, first Monday of December, March, June and September; secretary, Wm. L. McBride, Seibert, Colo.

Lake County—First Thursday of each month; secretary, J. C. Strong, Leadville.

Larimer County—First Wednesday of each month; secretary, Lowell Little, Fort Collins.

Las Animas County—First Friday of each month; secretary, M. C. Albi, Trinidad.

Mesa County—First Tuesday of each month; secretary, V. T. De War, Grand Junction.

Montrose County—First Thursday of each month; secretary, F. G. Didrickson, Montrose.

Morgan County—Last Monday of each month; secretary, E. R. Johnson, Fort Morgan.

Northeast Colorado—Second Thursday in each month; secretary, E. P. Hummel, Sterling.

Northwestern Colorado—Second Thursday of each month; secretary, F. J. Blackmer, Steamboat Springs.

Otero County—Second Thursday of each month; secretary, Ward C. Fenton, Rocky Ford.

Prowers County—First Tuesday of each quarter; secretary, Geo. S. Williams, Lamar, Colo.

Pueblo County—First and third Tuesday of each month; secretary, George A. Unfug, Pueblo.

San Juan Medical—Second Saturday, January, April, July and October; secretary, R. L. Downing, Durango.

San Luis Valley—Fifteenth of each month; secretary, Sidney Anderson, Alamosa.

Weld County—First Monday of each month; secretary, Florence Fezer, Greeley, Colo.

COMMITTEES FOR 1930

Committee on Scientific Work: Maurice H. Rees, chairman, Denver; Crum Epler, Pueblo; C. Gillaspie, Boulder.

Committee on Credentials: F. B. Stephenson, chairman, Denver; John P. McDonough, Gunnison; C. A. Davlin, Alamosa.

Committee on Public Policy: W. H. Halley, chairman, Denver; Chas. N. Meader, Denver; C. F. Kemper, Denver; Harry S. Finney, Denver; L. H. McKinnie, Colorado Springs; L. E. Likes, Lamar; N. A. Madler, Greeley.

Committee on Publication: C. S. Bluemel, chairman, Denver; Wm. H. Crisp, Denver; George A. Moleen, Denver.

Committee on Auditing: E. D. Downing, chairman, Woodmen; George H. Noonan, Walsenburg; Edward P. Hummel, Sterling.

Committee on Necrology: C. S. Elder, chairman, Denver; G. C. Cary, Grand Junction; Lee T. Richie, Trinidad.

Committee on Medical Education: Edward Jackson, chairman, Denver; W. B. Yegge, Denver; O. M. Gilbert, Boulder.

Committee on Arrangements: Frederic Singer, chairman, Pueblo; R. H. Finney, Pueblo; Harold T. Low, Pueblo; George E. Rice, Pueblo.

Committee on Social Medicine: B. B. Jaffa, chairman, Denver; W. B. Hardesty, Berthoud; George H. Curfman, Salida.

Committee on Medical Literature: W. C. Finnoff, chairman, Denver; A. J. Markley, Denver, Gerald B. Webb, Colorado Springs.

Committee on Hospitals: Peter O. Hanford, chairman, Colorado Springs; R. W. Arndt, Denver; R. P. Forbes, Denver.

Committee on Military Affairs: George P. Lingenfelter, chairman, Denver; Paul M. Ireland, Pueblo.

Committee on Mental Hygiene: F. G. Ebaugh, chairman, Denver; C. S. Bluemel, Denver; Frank H. Zimmerman, Pueblo; Philip Work, Denver; H. A. La Moure, Pueblo; Frank T. Stevens, Colorado Springs.

Committee on Periodic Health Examinations: C. E. Harris, chairman, Woodmen; F. M. Heller, Pueblo; Lowell B. Little, Fort Collins.

Committee on Cooperation with State Pharmacal Association: A. M. Forster, chairman, Colorado Springs; M. C. Albi, Trinidad; Frank J. Blackmer, Steamboat Springs.

Committee on Cost of Medical Care: Maurice H. Rees, chairman, Denver; S. B. Childs, Denver; J. J. Waring, Denver; John B. Hartwell, Colorado Springs; George H. Curfman, Salida.

Committee on Industrial Commission Fees: William Senger, chairman ex-officio, Pueblo; Harold T. Low, Pueblo; John R. Espey, Trinidad; H. G. Garwood, Denver; Crum Epler, Pueblo; William H. Halley, Denver.

Committee on Finance: C. F. Hegner, chairman, Denver; H. R. McKeen, Denver; L. W. Bortree, Colorado Springs.

Curator of Exhibits: E. D. Downing, Woodmen.

Committee on Golf Tournament: H. T. Low, chairman, Pueblo; J. W. Thompson, Pueblo; J. F. Snedec, Pueblo.

WYOMING SECTION

President, C. W. Jeffrey, Rawlins — First Vice President, R. H. Sanders, Superior
President-Elect, E. L. Jewell, Shoshoni
Secretary, Earl Whedon, Sheridan — Treasurer, Evald Olson, Lovell
Delegate to the A. M. A., Geo. P. Johnston, Cheyenne — Alternate, J. H. Holland, Evanston
Councilors: C. Y. Beard, Cheyenne — H. L. Harvey, Casper — J. H. Goodnough, Rock Springs
Medical Defense Committee: Earl Whedon, Sheridan — Chester Harris, Basin — F. A. Mills, Powell

EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT

THE GOVERNOR

The editor realizes that any political discussion offered in a partisan way is out of place in a state medical journal. We are not Republicans, Democrats or Socialists; we are doctors.

But would it not be refreshing to read, in the letter announcing his candidacy for the high office of governor, some statements such as the following:

"If elected governor of Wyoming I pledge myself to do all I can in the interest of good health for the people of Wyoming.

"That I will work for the health of our people and will see to it that a health department worthy of the name shall be provided with as much money as the sheep, cattle or game departments are given; that money be spent as freely for the protection of our people as it is now spent for cows, sheep or fish.

"That politics will have no place in health work and that all employees in any department shall be up to the highest standards.

"That quacks of all kinds be exposed and run out of Wyoming. We don't need them."

That's the kind of a governor the people of Wyoming want and should demand, be he Republican, Democrat or what not. E. W.

WHAT COWARDS WE WOULD BE

So many times in life we hear our patients say, "If we could only see ahead into the future." Often this expression is used when considering the outcome of a medical or surgical case. The doctor himself has often thoughtlessly pondered on the question of future events and their possible turns.

Yet, we know nothing in all the realm of life's experience which is as kind to us as this veil which hides the view ahead.

In place of a great disadvantage it is nature's kindest gift to mankind. Nothing is more merciful and, surely, if we but consider from a medical standpoint the terrific mental and nervous strain which we would constantly be under and which none of us could endure, we shall never again complain of our limitations of vision into the future.

It is true that we might make more money if we could know where to invest our savings and what the final returns would be; or if we could plan our life's work according to the ultimate end of life. But think for a moment on the other side of the question.

Where is there a man with a nervous system which would stand up under the terrific strain of knowing all future events? To know that one year, one month or even one week hence we were going to lose by a terrible accident one of our loved ones; that do everything in our power we were certain to meet defeat in the fight to make a success in the treatment of certain cases under our care; that all our cherished standards of life were to be swept aside and poverty, suffering and death alone were to be our companions; that hope had forever left us; fear would then break our spirits and fill the insane asylums to overflowing.

Nowhere, we repeat, in all the realm of nature has she been kinder to us than when she draws the curtain of uncertainty in front of our pathway and allows us to climb on life's highways with the surety of hope lighting our way as we fight for mankind in trouble, sickness and even in death. E. W.

THE SHERIDAN MEETING

Last call! All aboard! July 14 and 15 and then some.

Pack up your outfit, put the good wife at the wheel and start for Sheridan so as to arrive Sunday afternoon, July 13.

Forget your troubles and even this form of prosperity and come and have a good time.

We fellows in Wyoming lead a different life from most of the doctors of the rest of the United States.

Distance means little to us as we are used to the great wide spaces. Bad roads and troubles are every day finds and so they can't keep us away. We may not have the ultra scientific papers of some societies, but we do have a brand of western goodfellowship that is the real thing.

To the doctors of our adjoining states we extend a welcome, we would love to have you come and we promise to be the best listeners you ever knew. There is only one thing needed and that is to write for reservations. Do it now! Come and have a grand time and you will return to your work with more pep and be a little better doctor and know the other fellow just a little better than you did before your trip.

Sheridan is a beautiful little place and with the Big Horns so near, you can take any kind of a vacation your heart desires.

The program is not crowded and plenty of time will be given for honest, free discussion.

The Monday morning clinic at the U. S. Veterans' Hospital with its four hundred and fifty nervous and mentally diseased patients will give you a review of these diseases which every doctor in Wyoming needs.

The program follows:

TWENTY-EIGHTH ANNUAL MEETING OF THE WYOMING STATE MEDICAL SOCIETY, SHERIDAN WYO., JULY 14, 15, 1930

Registration Headquarters—Elks' Club

Medical Society Meetings—Elks' Club
Woman's Auxiliary—Woman's Club Building and Country Club

For Hotel Reservations, write Dr. S. W. Johnson, Sheridan, Wyoming

Due to the tourist rush in July and the limited hotel accommodations, it is absolutely necessary that reservations be secured at once. Don't delay this, or you'll be sleeping in the park.

PROGRAM

SUNDAY, JULY 13, 1930

8:00 P. M.—Smoker at the Country Club.
The Sheridan County Medical Society entertaining.
See entertainment for visiting ladies.

MONDAY, JULY 14, 1930

MORNING SESSION

6:30—Golf tournament at the Country Club.

9:15—CLINIC—U. S. Veterans' Hospital No. 86, with presentation of cases of various mental diseases.

11:30—First meeting of the House of Delegates. Administration Building, Staff room.
Lunch served by the Medical Staff of the Veterans' Bureau.

AFTERNOON SESSION

Elks' Club—Lodge Room

1:30—CALL TO ORDER—Dr. C. W. Jeffery, President, Wyoming State Medical Society, Rawlins.
ADDRESS OF WELCOME—Chas. P. Story, Mayor of Sheridan.
ADDRESS OF WELCOME—Dr. C. E. Stevenson, President, Sheridan County Medical Society, Sheridan.
RESPONSE—Dr. E. L. Jewell, President-elect, Wyoming State Medical Society, Shoshoni.
PRESIDENTIAL ADDRESS — Dr. C. W. Jeffrey, Rawlins.
SECRETARY'S ANNUAL REPORT—Dr. Earl Whedon, Sheridan.
PAPER—"Diathermy in the Treatment of Pneumonia," Dr. Herbert L. Harvey, Casper.
PAPER—"Asthma, Secondary to Focal Infection," Dr. J. B. Potts, Omaha, Nebraska.
PAPER—"Emergency Treatment of Eye Injuries," Dr. W. W. Yates, Casper.

6:30—Annual banquet at Hotel Lodore, at the foot of the Big Horn Mountains, tendered by the Sheridan County Medical Society to all members of the State Medical Society, their ladies and guests.

GOLF PRIZE

At the Casper meeting of the House of Delegates, the secretary was ordered to purchase a suitable cup, to become the property of any member of the Wyoming State Medical Society who should win the annual golf championship three times.

The cup will be awarded to the member of the Wyoming State Medical Society each year who wins, with the lowest score, and retained until the next annual meeting and his name will be engraved thereon and his score. A golf committee consisting of Dr. E. G. Denison, Dr. W. H. Roberts and Dr. J. G. Stewart will conduct the contest at the Sheridan Country Club, beginning Monday morning, July 14, at 6:30 a. m. The winners will then play for the cup on Tuesday morning, July 15th, at 6:30 a. m.

Please notify the committee of your intention to play, so that they can arrange the plan of the play.

All members of the Wyoming State Medical Society, their families and guests, will be the guests of the Sheridan Country Club while attending the State Meeting.

TUESDAY, JULY 15, 1930

MORNING SESSION

6:30—Finals of Golf Tournament.
9:30—Clinics at the Sheridan County Hospital. Conducted by members of the Sheridan County Medical Society.
11:00—Meeting of the House of Delegates. Parlor of Nurses' Home. Luncheon served by the Hospital Management.

AFTERNOON SESSION

Elks' Club—Lodge Room

1:30—Scientific Meeting.
PAPER—"Spinal Anesthesia," Dr. W. W. Horsley, Lovell.
PAPER—"Immediate and Late Results of Perineal Prostatectomy," Dr. Edwin Davis, Omaha, Nebraska.
PAPER—"The Elimination of Unsuspected Malignancies in Making a Diagnosis," Dr. Elizabeth Newcomer, Denver, Colo.

OFFICERS

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PRESIDENT-ELECT ..Dr. E. L. Jewell, Shoshoni
FIRST VICE PRESIDENT.....
.....Dr. R. H. Sanders, Superior
SECRETARY.....Dr. Earl Whedon, Sheridan
TREASURER.....Dr. Evald Olson, Meeteetse
COUNCILORS:
Dr. C. Y. Beard, Cheyenne, three-year term.
Dr. H. L. Harvey, Casper, two-year term.
Dr. J. H. Goodnough, Rock Springs, one-year term.
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ALTERNATE TO A. M. A.....
.....Dr. J. H. Holland, Evanston
Editor, Wyoming's Part of Colorado Medicine.....
.....Dr. Earl Whedon, Sheridan

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Entertainment
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Dr. J. E. Carr.
Dr. R. E. Crane.
Dr. Wm. Schunk.
Dr. L. C. Meredith.
Golf
Dr. E. G. Denison, Chairman.
Dr. W. H. Roberts.
Dr. J. G. Stewart.
Hotels
Dr. S. W. Johnson, Chairman.
Dr. F. A. Dolan.
Dr. O. L. Veach.
Clinics and Place of Meeting
Dr. W. A. Steffen, Chairman.
Dr. E. R. Schunk.
Dr. H. R. Carson.

A fishing trip in the Cloud Peak region will be arranged for those who wish to go, following the close of the Annual Meeting. Senator Spear's Wigwam Camp will be the headquarters. This beautiful location can be reached via auto, and the lakes and mountain streams afford the finest fishing.

This resort is not run on the dress parade order, but meals are served roundup style. Saddle horses are provided for trips from the camp, and lakes and streams are well stocked with trout. It's a regular fisherman's paradise.

Arrangements and reservations for a limited number can be secured by writing to Dr. Earl Whedon, Secretary, Sheridan, Wyo.

LADIES' AUXILIARY OF THE WYOMING STATE MEDICAL SOCIETY MEETING

SUNDAY, JULY 13, 1930

Sunday afternoon and evening—Meeting ladies at the Elks' Club on their arrival.
8:00—Reception at Woman's Club Building.

MONDAY, JULY 14, 1930

8:00—Seeing Sheridan.
10:00—Business Meeting at Country Club.
12:30—Luncheon at Country Club.
2:00—Cards at Country Club.
5:00—Leave Sheridan for annual dinner at Lodore, with doctors.

TUESDAY, JULY 15, 1930

10:00—Drive about Sheridan.
12:00—Luncheon at Sheridan Inn.

STATE AUXILIARY OFFICERS

President.....Mrs. Evald Olson, Meeteese
President-Elect.....Mrs. R. H. Sanders, Superior
Vice President.....Mrs. F. A. Mills, Powell
Treasurer.....Mrs. C. W. Jeffrey, Rawlins
Secretary.....Mrs. R. F. Seibel, Casper
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Mrs. Wm. Schunk.
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Mrs. R. E. Crane, Chairman.
Mrs. L. C. Meredith.
Luncheon at Country Club
Mrs. C. E. Stevenson, Chairman.
Mrs. W. A. Steffen.
Mrs. E. E. Levers.
Mrs. E. R. Schunk.
Luncheon at Sheridan Inn
Mrs. E. G. Denison, Chairman.
Mrs. Earl Whedon.
Mrs. J. G. Stewart.
Reception Committee
Mrs. Earl Whedon, Chairman.
Mrs. J. G. Stewart.
Mrs. C. E. Stevenson.
Mrs. E. G. Denison.
Reception at Woman's Club
Mrs. W. H. Roberts, Chairman.
Mrs. H. A. Hewin.
Refreshments for Reception
Mrs. T. E. Marshall, Chairman.
Mrs. E. D. Piper.
Mrs. T. G. McLin.
Card Party at Country Club
Mrs. J. G. Stewart, Chairman.
Mrs. S. W. Johnson.
Mrs. H. R. Carson.

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EDITORIAL NOTES AND COMMENT

TYPHUS FEVER?

A paper read recently to the Royal Society of Medicine[1] and the discussion which followed it have raised once more the question which to us has a peculiar local interest of the identity and identification of Typhus. Dr. Fletcher spoke especially of two forms of "Tropical Typhus" that are found in the Malay States. Although he admits that "the long list of typhus-like fevers is a list of names rather than a list of diseases," he asserts that "to call such diseases typhus fever is not only misleading and alarming to the public, but also causes unnecessary expense and interference with trade." Perhaps this is his real objection, but he has some more scientific ground upon which to fall back. Typhus fever is a winter disease and is epidemic, he says. But is not that simply to say that lice flourish among people who do not undress in the winter and that lice are numerous enough under certain conditions of filth to maintain the infection in epidemic proportions? If ticks were as numerous and as closely associated with us in the winter as lice are with their human hosts in certain parts of Europe, might not Rocky Mountain Fever also become a winter epidemic disease?

Dr. Fletcher points to the high fatality rate of typhus fever. Rocky Mountain fever may have as high a rate. There is also a very good explanation of its occurrence with low fatality rates. Typhus is said to be more virulent in proportion to the amount of virus injected. Doctors who work until they drop, and so may be bitten many times by infected lice, suffer a proverbially high rate of fatality. Where only a single tick bite is in question and where the tick is removed early the dose of the virus may be small and the resulting disease correspondingly mild. We do not know whether any observations have been made upon this point.

Evidence on the positive side associating these typhus-like diseases with typhus fever is yet, we must admit, incomplete. The remarkable clinical resemblance, however, cannot be overlooked. The recent research of Maxey and Mooser with Brill's disease has carried its identification with typhus fever a long step further—if not to completion. In the case of Rocky Mountain Fever Spencer and Maxey[2] find a "qualitative difference" in the Weil-Felix reaction as it occurs in typhus fever and in Rocky Mountain spotted fever which they think may have some significance, although Kerlee and Spencer[3] wrote a year earlier: "In view of the clinical similarity of typhus fever and Rocky Mountain spotted fever and the high titres obtained in our tests we believe the finding of a positive agglutination in Rocky Mountain spotted fever is not accidental." The uncertain role of B. proteus x 19 in the disease makes the "qualitative differences" above referred to

[1]Fletcher, W. Typhus-like Fevers of Unknown Etiology, with Special Reference to the Malay States. Proc. R. S. M. 23:1021 (May) 1930.

[2]Spencer, R. R., and Maxey, K. F.: The Weil-Felix Reaction in Endemic Typhus Fever and in Rocky Mountain Spotted Fever. Public Health Reports, 45:440 (Feb. 28) 1930.

[3]Kerlee, A. L., and Spencer, R. R.: Rocky Mountain Spotted Fever. P. H. Reports, 44:179 (Jan. 25) 1929.

of uncertain significance. The failure of Spencer and Maxcy to establish cross immunity in animals between these two diseases is of more serious importance. But no great weight is to be attached to purely negative results. Subsequent experiments may be more successful. If they should be, will not the time have arrived to expunge Rocky Mountain spotted fever from the nomenclature of disease?

WOULD PAY CLINICS PAY?

In his address to the House of Delegates at Detroit the retiring president of the American Medical Association dealt realistically with the broader social and economic aspects of medical practice. He set out, as an example of what may be expected to happen to the medical profession "when it loses control of its own business," the proposals of certain medical socialists in England who are seeking to promote a universal medical service in that country. He believes that medicine in this country is being beseiged by "forces" that are constantly growing stronger and that it is necessary to prepare a constructive defense if we are to save ourselves from social medicine in the future. To this end he proposes the organization by county medical societies of medical centers to be "owned, controlled and managed by the profession" whereat all such as cannot afford to pay regular medical fees may receive treatment at a charge which they can afford to pay. He proposes, in other words, the establishment of pay clinics under the control of the profession and subsidised at the profession's expense.

The fairness of this proposition will hardly be questioned by anyone, for "he who pays the piper calls the tune." The first question that arises, however, is whether the profession can afford to pay the piper. In such clinics it is not only a question of offering service at less than its money value; materials often must be dispensed at much less than their cost price. The cost of organization and upkeep will be not inconsiderable; the research needed to determine in the case of each patient whether he or she is a proper patient and how much each should contribute will be an expensive item. Unless some means are taken to avoid it the pay clinic will inevitably attract large numbers who are now being treated for little or nothing in state hospitals and charitable institutions. If means are taken to avoid this it can only be by that type of collective bargaining with the state which Dr. Harris is so anxious to avoid.

Theoretically the cost of pay clinics, however great it may become, can be borne. Accurate cost accounting will enable the profession to forecast the expense. The fees charged to the wealthy in private practice can be adjusted to meet the needs of the poor at the clinics. But it would be unwise to embark on such a policy without taking public sentiment into account. The wealthy might argue that in effect they were paying for the clinic without having any influence in its control. The public might find fault with the clinic's management, politicians and legislators might interfere, and the interference of legislators is not the less aggravating when it happens to be unjust.

Constructive suggestions in the field of medical economics are rare. We should not be ungrateful, nor are we, for the proposal that has been put forward. If it is not accepted as it stands, at least it provides a challenge to each one of us to put forward a better scheme. The establishment by the Board of Trustees of the American Medical Association, at Dr. Harris's suggestion, of a Bureau of Medical Economics should greatly aid our efforts.

JUNE SHORTAGE

Due to an extraordinary demand for copies of the June, 1930, issue of Colorado Medicine, the Executive Office lacks the number usually reserved for filing. The office would deeply appreciate it if a few Denver members would send in uncut copies of the June issue which they have finished reading.

PEACE AND EPILEPSY

C. S. BLUEMEL, M.D.
DENVER

In the study of epilepsy much attention has been given to physical things, such as diet, auto-intoxication, blood chemistry, allergic reaction possible glandular disturbances, possible cerebral lesions, etc.

Less attention has been devoted to the mental side of the disease though we sometimes use the term hystero-epilepsy when it seems that seizures might have resulted from psychological causes. The term hystero-epilepsy conveys the implication that the presence of an emotional factor separates a spurious form of epilepsy from the genuine disease. But here we are dealing not so much with differential diagnosis as with point of view, and there are many points of view because our conception of the disease is not yet clarified.

It is interesting to speculate on what constitutes epilepsy. When a patient has frequent loss of consciousness, accompanied by convulsions, we are satisfied that epilepsy is present, and we describe the attacks as major epilepsy or grand mal. But there is a dilemma, for many patients have only partial loss of consciousness or momentary loss of consciousness without convulsions, or with very little jerking. Here we compromise by calling the attacks minor epilepsy or petit mal.

And when we consider petit mal, we find that it resembles something common in normal experience; namely, jumping or starting from sudden surprise or loud noise. In a person thus startled, there is a momentary disturbance of consciousness, which with sudden jumping or quivering, is not unlike a petit mal seizure.

A more marked disturbance of consciousness, but one that is still regarded as normal (not due to disease) is that of fainting. Here the common cause is a strong emotional stimulus, the emotion usually being that of fear. Thus people faint when seeing blood or upon receiving bad news. Yet our every-day fainting spell is closely allied to the epileptic convulsion; in fact it is scarcely possible to draw a hard and fast line between the two episodes. To illustrate: A hospital orderly becomes unconscious on seeing his first surgical operation. He is pale, his pupils are dilated, but he lies perfectly still. We say that he has fainted. An army oficer becomes unconscious when his back is touched with a lumbar puncture needle. He is pale, his pupils are dilated, and he gives two generalized convulsive jerks. There is now some uncertainty as to what has happened. No medical man observing the attack could say that the officer merely fainted; nor could he say that the patient had actually had a convulsion.

And so with good reason we wonder whether starting and fainting, and petit mal and grand mal are not associated emotional disturbances of consciousness in which the difference is principally one of degree.

Having this possible relationship in mind, we will consider a few cases of epilepsy in which the causes of petit mal and grand mal attacks are similar to the causes of starting, jumping, and fainting:

Mrs. B. has petit mal attacks which she calls "shocks," whenever she sees a startling headline in the paper. When she reads of a murder or suicide, she recoils with partial loss of consciousness.

Mrs. F. has a light seizure whenever she hears bad news. Thus, if she hears that a neighbor has chopped a finger or broken a leg, she immediately reacts with an attack.

Baby John at the Children's Hospital has a light spell whenever the intern puts his head in the door. Sometimes he has a seizure when the nurse looks into the room.

Beverly, fifteen months old, had an attack on the Fourth of July when some children let off a firecracker close to her.

Baby Harold, eight months old, often has attacks when he is startled. A seizure may be brought on by the slamming of a door or the ringing of a telephone bell. Loud noises bring on convulsions even when he is asleep.

Beatrice, six years old, has light jerking

attacks in which her mind seems blank. She says that these spells sometimes come when her mother looks at her. Her mother has dark piercing eyes that are expressive of fear, and this glance seems to be an adequate stimulus for Beatrice's seizures.

Alice, sixteen years old, had a light epileptic attack a number of years ago when she was passing an apartment house on her way from school. The gleam of the sun on the apartment house windows seemed to startle her into partial loss of consciousness. Several times afterward she had attacks when she passed this building with the sun at such an angle as to strike from the windows. She has come to regard this particular house as a bugaboo.

Mary, a year old, had an epileptic attack when her eyes were being examined with an ophthalmoscope. Julius, two years old, had an attack when a speculum was put in his ear. He had another seizure when a spatula was put in his mouth. In the last two cases we have demonstrations approaching laboratory methods, for we see children startled into epileptic fits before our eyes.

The emotion causing epilepsy is not always of a startling or fearful character. Sometimes it is merely stimulating or disturbing, as in the following instances:

Marvin, seventeen years old, had an epileptic spell when his mother returned unexpectedly from a visit to another part of the country. Marvin also has attacks when his mother and father quarrel.

Julius, two years old, often has attacks when he is angry, and he frequently has spells after crying. At the hospital he cries when his mother puts him down. On her refusal to pick him up, he cries more and more vigorously, and finally has a convulsion.

Mary, sixteen years old, was greatly overwrought when she killed a baby turkey. Her agitation culminated in a convulsion, which was the first attack in a protracted epileptic history.

Elsie K. had an attack when the house caught fire. She had another spell when she was getting ready to go to a wedding.

John, eighteen years old, had his first attack of petit mal while playing baseball.

The epileptic spell does not always follow the emotion immediately. Often the attack ensues several hours later. None the less there seems to be a definite relationship between excitement and seizure, as the following histories illustrate:

Carl, nineteen years old, has had two epileptic attacks. The first occurred after playing football; the second after playing basketball.

A young sign painter, eighteen years old, had his first attack a few hours after an automobile wreck.

A mechanic, thirty-four years old, had his first attack a few hours after he caught some boys cheating at marbles. His sister, a graduate nurse, says that he became so enraged that he was cyanotic. The epileptic spell occurred during sleep six hours later.

Mrs. W. has had two attacks. The first followed the death of her mother-in-law at her home; the second occurred while she was getting ready to go to a wedding.

Alice traces half a dozen consecutive seizures to various forms of excitement, the occasions for which she has recorded in her diary. These occasions were: attending a church party, a moving picture, a concert, a Halloween party; conducting a Sunday School class; arguing with her parents about the purchase of an expensive fur coat.

It is unlikely that the patient will give a history of emotional excitement unless definite inquiry is made concerning it, for the patient may have observed no connection between his mental life and his attacks. At first he may even deny that emotional stimulation has preceded his seizures, though he will often modify his statement on giving the matter further thought.

Myrtle, for instance, is at first sure that no stimulation or excitement could have precipitated her initial attack of epilepsy. Later she recalls that she has been rehearsing for a Tom Thumb play and that she had spent a lot of time selling tickets. The attack occurred when she entered a neighbor's home on a ticket selling expedition.

Mr. W. says that everything was placid when he had his first seizure a week ago. Later his wife volunteers the information

that he had just become reconciled to his father after a long period of estrangement. The father and son were talking about the old home when the convulsion occurred.

Mrs. S. is certain that nothing has disturbed her feelings during the past month, though she has had two spells in this period. Later it occurs to her that her mother's visit may have had something to do with her seizures, for it was on the day of her mother's arrival that she had the first attack, and on the day of her departure she had the second.

The foregoing cases seem to show that a definite relationship exists between emotion and epilepsy. Although it does not necessarily follow from these cases that emotional stimulation is the sole cause of epilepsy, yet it is conceivable that "idiopathic" epilepsy is psychogenic and without relation to diet, metabolism, and other physical causes.

Further weight is given to the psychogenic theory by the circumstances under which seizures return following a period of tranquil living and freedom from attacks. Almost invariably the patient's relapse is preceded by overstimulation and excitement: Mrs. L. had been well for a year. She then gave a dinner and theater party, the affair being accompanied by much eagerness and enthusiasm. At the theater Mrs. L. had an epileptic seizure. Jack S., a traveling salesman, went nine months without a spell, then had a seizure after a frenzied day's work in which he made three towns in twenty-four hours. Fred J., a boy of twelve, had been well for two years and was attending boarding school. When summer vacation came, his father drove him home by automobile, a distance of 700 miles. On arriving home, Fred had three attacks in one day. Unfortunately such histories of relapse are common.

Another argument for the mental origin of epilepsy is the fact that patients may improve under irrational therapy in which they happen to have confidence. Epileptics often do well for a time when taking chiropractic treatments. But in due course the spells recur, confidence is lost, and the treatment is no longer efficacious. We often find that patients derive no benefit from luminal or bromide when it is conservatively prescribed by the physician. Yet these same remedies prove helpful when they are purchased as proprietary medicines, at an extravagant cost and with extravagant promise of the results to be anticipated.

Again, patients develop their own therapeutic foibles. One patient cannot eat meat; another cannot touch sweets; a third cannot sleep on his back, etc.

That there is a mental factor in epilepsy, there can be no doubt. Whether or not there are also physical causes for idiopathic epilepsy remains to be seen. But whatever the future may reveal as to physical causes, it is certain that the patient can benefit at the present time by safeguarding his mental and emotional life. If he will cultivate tranquillity and will avoid situations that are necessarily stimulating, he will also avoid many epileptic seizures.

The state of mind is of the utmost importance. The patient should at all times cultivate composure. His calmness, however, should come from within, for there is no real tranquillity when one merely holds himself in check by constrained self-possession. Nevertheless the outward manner and the inward state of mind reflect themselves upon each other, and the patient will be able to enhance his mental composure by cultivating quiet speech, a low voice, and unhurried movements.

The temperament and outlook on life have much to do with the state of mind. If a patient is selfish, egotistical, and intolerant, he will not be at peace with the world; and if he is excitable, restless, and fearful, he will scarcely be at peace with himself. The patient must consider then not merely his passing mood, but his adjustment to the world in which he lives.

Often the circumstances of a patient's daily life destroy his peace of mind. Mrs. B. had a friend whose conversation was vehement and incessant. Association with this friend usually led to a number of petit mal attacks. The attacks became fewer when the friendship was relinquished. Betty B., a five-year-old epileptic, was constantly stimu-

lated by a fox terrier. The dog barked at every street noise and scampered from one window to another, with the child following. The child was found to be less excitable when the dog was given away. Baby Harold, whom we have already mentioned, was often startled into epileptic seizures by loud noises. The child's home was on a corner where the street cars turned with bells clanging. The little patient's attacks became fewer when the family moved to a quieter neighborhood. The adult patient can do much to regulate his own circumstances. Thus he will avoid arguments, dances, and football games if he finds that these things are followed by nervous tension and by spells. Obviously, though, he cannot avoid all harmful situations, for at times he will come in contact with sickness. disappointment, bereavement, and other emotional situations from which foresight cannot shield him. His reliance, then, must be upon his inward tranquillity.

With the adult patient the matter of occupation is to be considered. We advise the epileptic as a matter of course against engaging in hazardous work, such as running a machine or painting a roof. In addition, we should warn him against occupations that disturb his peace of mind. The patient can scarcely cultivate composure if he is a traveling salesman hurrying from one town to the next. He cannot maintain tranquillity if he is a shipping clerk, whose shipments are crowded into the last few hours of the day. He cannot keep his emotions undisturbed if he is a collector who must argue with people about unpaid accounts. In other words, the epileptic's work should afford him peace of mind as well as physical safety.

Often the patient's family can do much to establish tranquillity. They may be accustomed to talking in high pitched voices and interrupting one another. In such instances they can assist by cultivating a quieter and more restful atmosphere within the home.

We often attempt a short-cut to tranquillity, by prescribing luminal and bromide, which induce an artificial state of repose. These sedatives are valuable, but they become less and less necessary as the patient comprehends his problems and maintains his composure.

In treating a severe case of epilepsy, it is well to emphasize tranquillity at the outset by prescribing a prolonged period of bed rest and isolation. The patient should remain in bed for a month or six weeks without receiving visitors and without devoting too much time to radio and reading. During this period he is given luminal in sufficient amount to insure a sound night's sleep and a nap or two during the day. After several weeks of bed rest the luminal is reduced, and the patient is gradually allowed to be up and around. At the end of eight or ten weeks he is again leading a normal life and is taking luminal or bromide only in small doses. But even at this stage of treatment and for a prolonged period thereafter the patient should take rest hours when feasible. If rest periods are not feasible during the week, he should spend Sunday morning in bed in order to secure additional rest and relaxation. Rest periods have a double advantage. They not only tranquillize the mind, but they direct the patient's attention to his task in emotional re-education.

In summary we may say that the epileptic can do much to reduce the frequency and severity of his attacks by avoiding emotional excitement and overstimulation. He can do even more by re-educating himself in tranquillity. By this is meant tranquillity in mind and spirit, and not merely outward self-composure.

Unfortunately the results of this re-education do not lend themselves to mathematical interpretation. Many patients remain free from attacks for months or years while leading tranquil lives. The longer this period of freedom, the more apt the patient is to be lost to the physician's observation. This fact, and the fact that there is no standard for tranquillity, make it impossible to express the results in statistical terms. None the less, the outstanding fact remains that a definite relationship exists between the epileptic's peace of mind and his freedom from seizures.

Summary

1. Epilepsy appears to be closely allied to fainting, and to starting and jumping from surprise.

2. It is not improbable that "idiopathic" epilepsy results from psychological causes and not from physical causes.

3. Epileptic spells are reduced in frequency and severity as the patient trains himself in tranquillity.

4. The patient's tranquillity should be an inward peace of mind and spirit, and not merely an outward self-possession.

CONGENITAL CLUBFOOT WITH PARTICULAR REFERENCE TO TREATMENT*

ROBERT G. PACKARD, M.D., AN D HAMILTON I. BARNARD, M.D.
DENVER

Clubfoot has been known and treated since the beginning of medicine. Hippocrates described it and suggested treatment which was very similar to that used today. Ambroise Paré also described it and gave many theories of etiology which have not been improved upon a great deal. All through history surgeons and physicians have written about it with very little change in the recommendations for treatment.

In the treatise on this subject the authors consider as clubfoot that deformity otherwise known as talipes equino varus. Although calcaneus deformities are sometimes classed as clubfoot, most authorities at present accept only the talipes varus abnormalities under this heading.

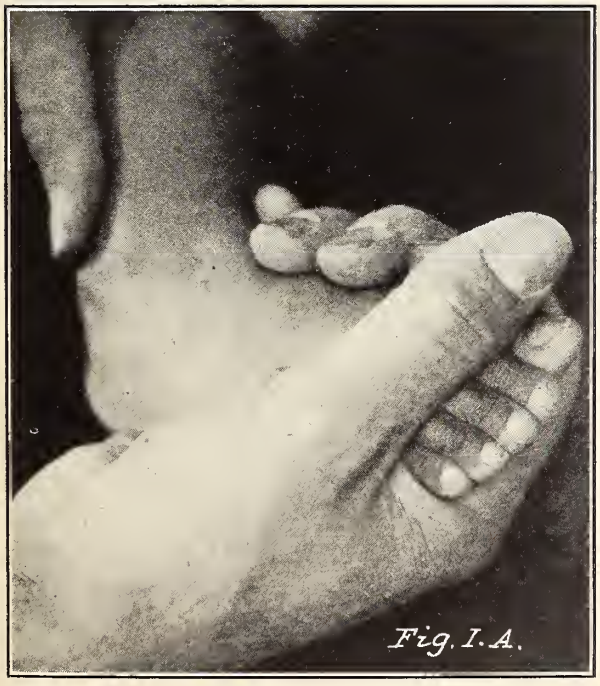


Fig. 1a. Method of correction of foot, first step.

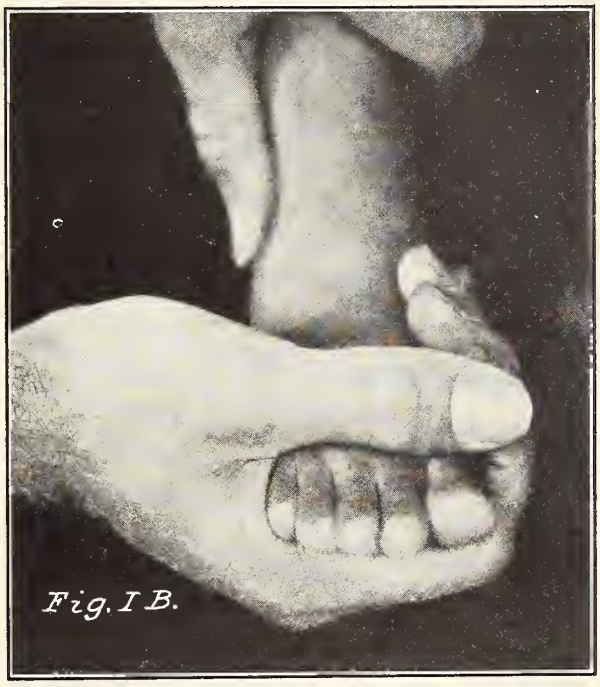


Fig. 1b. Method of correction of foot, second step.

The cause of congenital clubfoot is unknown. The two most plausible theories are the mechanical and aplastic. Bohm in a very long and exhaustive article states and attempts to prove that every embryo of three months has a clubfoot. He sums up the article by saying the best explanation for the great majority of cases of congenital clubfoot is the theory of primary endogenous disturbance of the embryo, an arrest of development. Bessel Hogan and Scudder attempt to disprove this theory. According to Sir Robert Jones it seems likely that the

*Read before the Fifty-ninth Annual Session of the Colorado State Medical Society, Greeley, Colo., Sept. 5, 1929.



Fig. 1c. Method of correction of foot, third step.

condition is caused by pressure and constraints, such as umbilical cord, malposition, abnormal amniotic fluid, interlocking of the feet, etc., and until we have more proof to the contrary, this theory we must accept. According to Whitman it is found twice as often in boys as in girls, 43 per cent of the cases are double, races are probably affected



Fig. 1d. Feet in corrected position with cast applied.

alike, and one baby out of one thousand has it.

Clubfoot is a mechanical abnormality. There is no element of infection or inflammation attached to it. It is a structural change involving particularly the ligaments, fascia, tendons and bones. The skin is normal. Circulation is normal. The foot is distorted; the plantar surface looks downward, inward, and slightly backward. The toes are often short and stubby with the big toe abducted on the foot. There is often rota-



Fig. 2a. Schapp's wrench, much used in last quarter century.

tion of the leg with the external malleolus forward, and the astragalus displaced out and forward, forming a prominence on the dorsum of the foot. The soft structures on the inner side of the foot are contracted. The tibialis anticus and posticus are shortened and the tendo Achillis is taut and displaced mesially. The heel is often obliterated, the patient walking on the toes. These changes are progressive and become more marked as the child grows and walks on the foot. Eventually there is produced a real

club-like deformity with a false heel formed by a compensatory bursa. These anomalies are all relative, and may vary from only a slight tendency to dropfoot to marked clubbing.

The symptoms are entirely objective as described by the above structural changes. In addition, atrophy of the entire foot and leg, and a decided limp may be present. There is very seldom any pain, tenderness, or swelling. The diagnosis is usually easy. Often deformity accompanies a mild spastic paralysis at birth which simulates clubfoot and is most con-

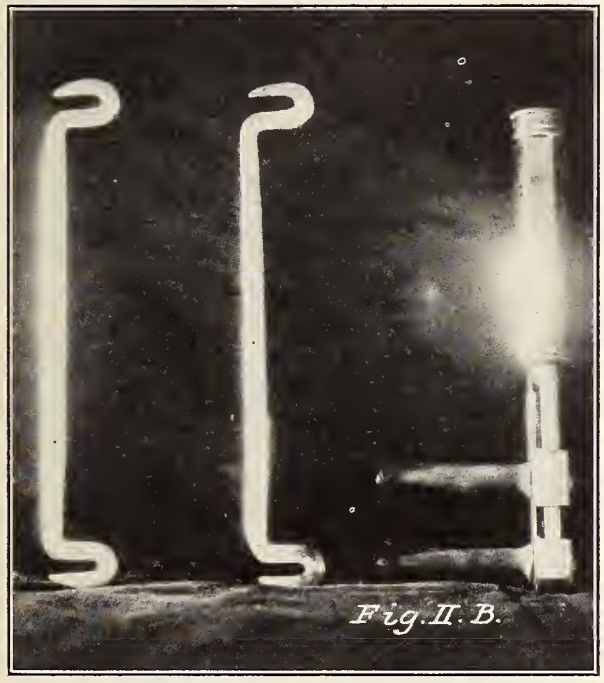


Fig. 2b. Pair of brace bars which are necessary in adjusting a club foot, also the Thomas wrench, in general use today.

fusing. The differential diagnosis is this; if the foot can be forced into eversion and dorsiflexion manually without pain or the aid of anesthetic, clubfoot can usually be ruled out. In clubfoot the reflexes are normal, in spastic cases increased.

The treatment is considerably varied and often flagrantly applied. There is probably no deformity which is apparently so simple and which is so often improperly treated by general surgeons and physicians as is congenital clubfoot. The lack of experience and perseverance in treatment has produced a host of appalling results.



Fig. 2c. The Neilson wrench.

Manipulation was the first form of treatment and is still the treatment of choice. After manipulation come tenotomies, Stromeyer having done the first. Then come fasciotomies and capsulotomies, and finally



Fig. 2d. Pair of club foot braces applied.

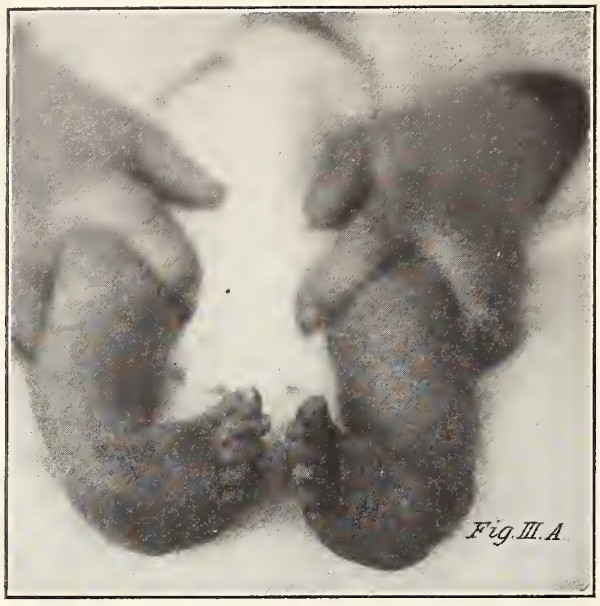


Fig. 3a. Patient two months old before correction.

the bone stripping operations, osteotomies and the arthrodeses. At present manipulation by hand is favored by most authorities. The majority of cases require tenotomy of the heel cord, and most relapsed cases call for operative procedure. The primary purpose naturally is to correct the deformity and restore the foot to a functionally normal extremity if possible. Treatment should be early, gradual, and persistent, and often as early as two weeks after birth manual manipulation is begun. There is a disputed point whether to correct the foot in a few



Fig. 3b. Case which had similar deformity to that in Fig. 3a, two years after correction with practically normal feet.

corrections exerting considerable force each time under anesthetic, or to correct it many times with very little force and without an anesthetic. We prefer the former and correct it in three or four sittings, using a general anesthetic, and using the maximum force with the minimum trauma.

Our procedure, the one developed by the late Dr. George B. Packard, is as follows: Under general anesthetic the foot is everted as much as possible by manual force. The method of holding and manipulating the foot



Fig. 3c. Foot of boy 10 years old with a relapse.

being shown in Fig. 1., A, B, and C. If it is a right foot correction the surgeon grips the right foot with his right hand so that the palm of the hand is against the sole of the foot the thumb being toward the toes and the fingers flexed around the arch of the foot. The left hand holds the leg, knee, and ankle. The palm is placed on the mid portion of the leg with the fingers pointing mesially, the thumb over the external malleolus and the hypothenar eminence and the little finger gripping the knee to prevent undue strain on the knee, and a circular

twisting motion is made with the right hand, stretching the inside of the foot and bringing it around into eversion. This is done for about five minutes, being careful not to contuse or lacerate the skin. A light, well padded cast is applied from the toes to the mid thigh with the foot held in the corrected position, the cast being held on with adhesive strips incorporated in it. As Fig. 1., D shows the toes should be free and a window cut over the dorsum of the foot so as to allow good circulation in the toes, which is manifested by a pink and rosy color. This procedure is repeated in about two weeks' time. The first two corrections are for the pur-

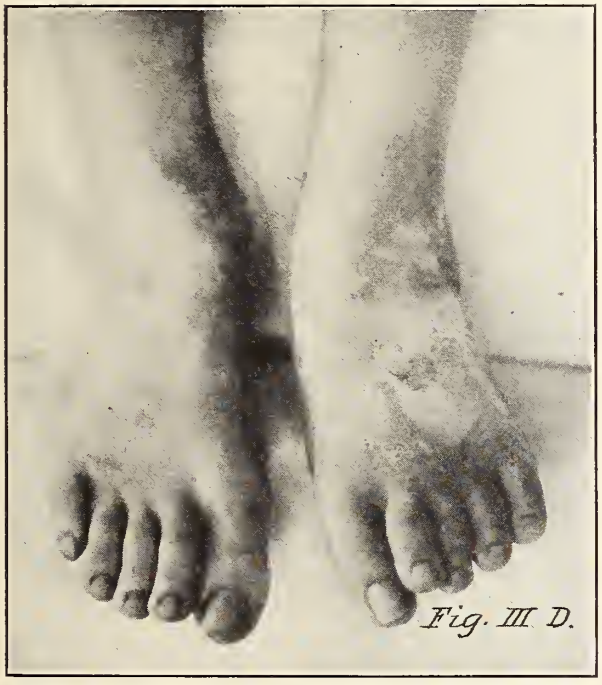


Fig. 3d. Same case as Fig. 3c, six weeks after osteotomy, with good result.

pose of bringing the foot into eversion. The third correction is made in another three weeks at which time subcutaneous tenotomy of the heel cord is done, and a cast applied in the same manner. The tendon should be cut entirely and there is no danger of it not uniting; in sixty-six cases good union occurred in all. After the foot is fully corrected casts are applied at intervals of three or four weeks until the child is about six months old, when a clubfoot brace is applied. The purpose of the brace is to maintain correction and by no means should it be applied to a foot for the purpose of cor-

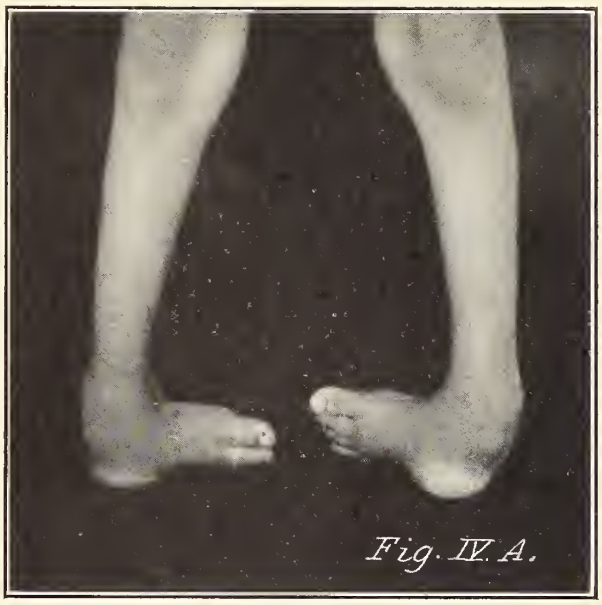


Fig. 4a. Untreated case, boy 8 years old with extreme deformity.

recting the deformity. The brace consists of a foot plate made to fit the bottom of the foot with an inside upright of steel extending to just below the knee, with three straps fastened to it to incorporate the foot as in Fig. 11, D. The parents, usually the mother, are instructed definitely about the brace, its removal, application, etc. When the child is able to walk a shoe is fitted to the foot and brace with the outer side of the sole and heel raised about one-quarter inch. After the child is about eighteen months old and



Fig. 4b. Same case as Fig. 4a, after double osteotomy; good result in right foot, fair result in left.



Fig. 4c. Girl baby, picture taken twenty years ago; treated by Dr. Packard, Sr., by osteotomy eight years ago.

the foot maintains a good correction without the brace, the latter is left off a little each day. The length of time of leaving the brace off is increased each week until it is worn only at night, and at the end of about two years the brace is left off entirely. The foot should be observed for at least one year after the child has walked without any appliance, and during the year of observation there has been no tendency to recurrence of the deformity.

If the foot cannot be corrected manually, the Thomas wrench, Fig. 11, B, is used and this is usually satisfactory up to three or four years of age. If under anesthetic the wrench does not force the foot around, osteotomy is resorted to. Experience alone will tell when operative procedures are necessary. The most common operation is cuneiform osteotomy of the tarsal bones of the dorsum and outer side of the foot, that is, the head of the astragalus, the scaphoid, cuboid, and part of the os calcis. Another common operation is the Hoke, which is a subastragaloid



Fig. 4d. Same case as Fig. 4c, eight years after operation. Patient is married and has one boy, who also has double club foot.

Fig. V
Statistics of 185 Cases of Clubfoot (Cong.)

	Not treated previously (127)			Treated previously (58)			TOTAL
	Under 1 yr.	1 to 4 yrs.	Over 4 yrs.	Under 1 yr.	1 to 4 yrs.	Over 4 yrs.	
Double	51	10	3	0	6	13	82
Single	42	16	6	0	10	29	103
Male	〃	〃	〃	〃	〃	〃	120
Female	〃	〃	〃	〃	〃	〃	55
Manipulation	18	10	1	0	4	0	33
Manipulation & Tenotomy	66	12	〃	〃	12	10	100
Fasciotomy	0	4	〃	0	0	5	9
Osteotomy	0	4	7	0	0	32	43
Duration of Treatment	2.1	3.5	2	0	3	12	
Good Results	82	22	6	0	11	32	153
Poor Results	11	4	2	0	5	10	32

Fig. 5. Results of 185 cases treated during the last ten years by Dr. Packard, Sr., and the authors.

arthrodesis. Operation is done under careful bone technique, and the foot is held in the corrected position with plaster casts, the same as in the closed method. The stitches are removed in two weeks. Steindler's Operative Surgery describes these various operations thoroughly. The period of treatment varies from one to four years as figure 5 will show.

The prognosis is very good if the deformity is treated early, and good if treated before the bones have fully ossified. After the patient is twelve years of age correction with good results is very difficult. Figure 5 shows results as being good or poor; good meaning a foot which will perform normally, although there may be considerable shortening of the foot structures, and poor meaning

a foot in which neither function or anatomy is restored. Results after manipulative treatment show both a good anatomical and functional result, while in the cases where osteotomies are done there is usually a good functional, but only a fair anatomical result.

In concluding let us sum up as follows: Clubfoot should be treated early, gradually and persistently; braces used only to maintain correction; osteotomies as a last resort, and done by an experienced and qualified surgeon.

DISCUSSION

Henry W. Wilcox, Denver: The doctor has described very completely the generally accepted treatment of this serious deformity, and has shown the results obtained by skilled treatment. The two words, it seems to me, that would describe the principles of treatment of this deformity are, first, thoroughness, which would apply particularly to the period of active correction; and, second, persistence, which is so necessary in the after-care. It is a good thing to begin the treatment at the earliest possible moment. The physician in charge of the case should immediately instruct the nurse or mother how to manipulate the foot gently but firmly, several times a day, and in that way slightly loosen progressively each day the shortened tissues, and then, at about the third or fourth week, when it is safer to give an anesthetic to the infant, the actual surgical correction is begun. Delay adds to the difficulty of correction, and makes more probable the necessity of using open surgical measures, and lessens the chances of obtaining an anatomically perfect foot. I think the old advice we used to hear quite frequently from the general practitioner, given to the parents, that this deformity in the milder cases would be outgrown, is not heard so often today, as I think physicians are better trained surgically. We do not advise routine tenotomy about the third month of treatment. Many of these cases do not require a tenotomy of the Achilles tendon. My experience has been that in many cases the manipulation so stretches the heel cord that the foot can be brought into the normal position without any cutting. As Dr. Barnard has said—brace treatment alone should be mentioned only to be condemned. A brace which could be put on sufficiently tightly to correct this deformity would cause sloughing of the soft parts, and would be unbearable because of pain. The deformity requires, in the course of treatment, that there shall be brought about as an end result, a foot which can be used normally as a support, and also as a propelling member, and yet have flexibility and strength.

Atha Thomas, Denver: This morning we heard a discussion of blindness in Colorado, and I think a similar discussion of crippling deformities in the state would be most pertinent.

There is a book entitled "Preventable Orthopedics," and if the principles set forth in that book were taught to every student graduating in medicine today we would see less of the disabling deformities that we do see today. The time has come when every case of neglected clubfoot should be put down as a crime against parents or doctor. Many of these cases that come to the orthopedic surgeon have been advised, "Let this go, the child will outgrow it," or "This should not be corrected until after the child begins to walk." Such advice in my opinion is criminal and is based on ignorance. The time to begin treatment is immediately after the birth of the child.

Concerning treatment, one point that should be emphasized, is that dependency on tenotomies and fasciotomies alone to correct the condition is fallacious. The deformity not only has to be overcorrected but the ligaments, bones, and muscles must be allowed to develop in the line of correction in order to prevent recurrence. It must be a gradual procedure and cannot be done at one sitting or with one surgical operation.

Charles E. Sevier, Denver: There is nothing particularly which I wish to add to Dr. Barnard's admirable discussion of this subject except to emphasize the point upon which we all agree; namely, that the correction of these deformities must be attempted as early as possible. It is particularly important also that the parents of the patients be impressed with the fact that the casts must be changed at regular intervals. I am convinced that much more satisfactory results are obtained in the cases which come regularly to the office than in those which because of the fact that they live a great distance from the city have a tendency to neglect their regular visits. In treating these cases, we attempt first to correct the varus, and then the equinus deformity.

THE INTRAVENOUS INJECTION OF SODIUM CHLORIDE SOLUTIONS.

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During the last few years an ever increasing amount of interest has been displayed by the medical profession in the abnormal blood chemistry of patients suffering from acute abdominal conditions such as intestinal obstruction, peritonitis due to acute inflammatory lesions, or peritonitis due to wounds of the parietes or of the various abdominal viscera; conditions usually associated with vomiting. The most marked features of the blood examinations in these cases are a decrease in the blood chlorides, with the development of an alkalosis, and subsequently a decided increase in the nitrogenous constituents. Whether or not these changes in the chemistry of the blood are due to the loss of hydrochloric acid and other substances in the vomitus exclusively is not certain. These deviations from normal are said to occur in some patients who have vom-

ited little. Gastric secretion retained in a dilated stomach would account for some of the depletion of the body's store of chloride.[1]

Various solutions of sodium chloride are used for the replenishment of the blood chlorides. A common procedure is to give 500 c. c. of 5 to 10 per cent sodium chloride solution or 3000 c. c. of 1 per cent sodium chloride solution intravenously each day. The great value of these procedures has been repeatedly confirmed by animal experiments and series of clinical cases.[2]

Untoward reactions

This article was inspired by the occurrence of certain complications and untoward reactions in the rather extensive use of sodium chloride solutions.

Edema: The development of edema of the face and hands following the administration of fairly large amounts of sodium chloride solution intravenously has been the most striking of several phenomena that have been observed. This has appeared in the majority of my patients who have received three to five liters of physiological sodium chloride solution daily for three to six days, during which time no other fluids were given by any other route. When one is looking for it, slight edema may be noted occasionally after forty-eight hours of treatment. The edema appears first in the parotid region and soon is present in the lids and the sides of the neck. Occasionally the hands are swollen. Discontinuance of the salt solution and administration of water by mouth cause a prompt disappearance of this swelling. Edema following the administration of excessive amounts of physiological saline solutions has been noted by others,[3] but its occurrence does not seem to have been generally recognized.

Albuminuria: The development of a benign edema may be of protective value in the dilution of toxins, but in certain of my cases the edema was accompanied by albuminuria. It is manifestly impossible to be sure that this albuminuria is due to the salt and not to the toxemia, but its frequent appearance in conjunction with the edema and its disappearance when administration of sodium chloride solution is stopped cause me to suspect that it is due to the salt. Daily administration of twenty-five grams or more of sodium chloride might easily tax the excretory powers of the kidneys if there were no chloride loss through other channels and storage of chlorides in edema fluids were impossible due to dehydration.

Thrombosis and embolism: An increased incidence of pulmonary embolus has been noted by many observers since the general adoption of treatment by intravenous infusions. Schleussing[4] in a recent article, states that careful investigations have convinced him that intravenous injections are often an etiological factor in thrombosis and embolism. Adolph and Hopman,[5] however, assert that pulmonary emboli were more common postoperatively in patients who did not receive such therapy than in those who received it. I have had three cases of postoperative pulmonary embolus; two following supravaginal hysterectomy and resulting fatally and one following prostatectomy. None of these patients received intravenous infusions prior to the occurrence of the embolus.

Localized thromboses of the veins used in the bend of the elbow were noted in a few of my patients who received hypertonic sodium chloride solutions intravenously with hypertonic dextrose solution, although such thrombi were never noted when physiological solutions were used exclusively. Thrombosis usually followed repeated utilization of the same vein. Such thrombi occurring in veins which previously carried actively flowing currents of blood toward the heart would necessarily be a greater menace than the thrombi produced by chemical irritation of the intima of varicose veins, in which the current is usually at a standstill or is reversed. Further large statistical studies may be needed to settle this question of pulmonary emboli finally.

Other sequelae: Most patients receiving large amounts of sodium chloride solution by vein complain of marked thirst. Delirium occurred in some of my patients who were receiving saline and glucose solutions as their sole source of fluid intake. These patients were all very ill, but their mental con-

dition was in strong contrast with the clear mentality of many similar ones who were differently treated previously.

Chills were noted in many cases within one hour after the intravenous injection of various saline solutions. I mention this only for the sake of completeness as I consider chills to be practically always due to some defect in the preparation of the solutions.[6, 7]

More alarming was a phenomenon observed in one of my patients (Case 3). An injection of normal saline was begun, but 5 per cent saline solution was added to the cylinder after the injection was under way. The patient soon began to complain of severe pain in the lumbar muscles, of a feeling as if he were "blown up all over," and of trembling. As soon as physiological saline began to flow into his veins these symptoms disappeared only to recur when the 5 per cent solution was started again.

Isotonic versus hypertonic solutions

I advocate the use of isotonic solutions in most cases. Dehydration is usually as marked as are toxemia and hypochloremia. Isotonic solutions in addition to supplying relatively more water for the same weight of sodium chloride possess the further advantages of being less irritating to the intima of the veins, and therefore less apt to cause thrombosis, and of being less apt to produce general symptoms. Isotonic solutions are harmless when given subcutaneously by accident.

Hypertonic solutions should be run in much more slowly than isotonic solutions, and the same general precautions as to the temperature of the solution, the freshness and purity of the ingredients, the preparation of the apparatus and the continuous close observation of the condition of the patient should be insisted upon.[8] On account of the bulk of physiological sodium chloride solution required to give the desired "1 gram of salt per kilogram of body weight"[22] hypertonic solutions should be used in hypochloremia whenever it is necessary to save time or to protect the heart against excessively increased blood volume. If dextrose is added subsequently to the making up of the saline solution, it should be poured into the flask of saline, not into the gravity cylinder, and carefully mixed.

Careful regulation of the blood chloride level should be maintained under the control of blood or urine[9] chloride determinations and isotonic solutions of dextrose should supplant sodium chloride solutions whenever any evidence of excessive tissue or blood chlorides appears. The giving of fluids rectally in post-operative treatment should by no means be neglected. I have never seen edema develop when tap water was being freely absorbed by the colon.

Conclusions

Edema and albuminuria may be produced by the intensive administration of sodium chloride solutions intravenously.

The benefit derived from the use of physiological saline solution in relieving toxemia is as great as that obtained from the use of hypertonic saline solutions provided a sufficient volume is given.

Physiological saline solutions are less apt to cause a reaction, or a thrombosis, and are of greater value in dehydration.

Hypertonic solutions of sodium chloride should be used when it is necessary to administer large amounts of salt in the preoperative preparation of emergency cases.

Isotonic solutions of dextrose should be used in the treatment of dehydration and toxemia when there is evidence of excessive tissue or blood chloride.

CASE REPORTS

Case 1: A laborer aged twenty-four was operated on November 30, 1926, and a ruptured appendix found and removed. Drainage was instituted. He had vomited several times preoperatively. For the next three days he was given 2400 c. c. of normal saline intravenously daily and was allowed nothing whatever by mouth. On the third day slight edema of the face was noted. The saline was discontinued at this time due to marked improvement in his condition and mouth feeding was started. The next day the edema had disappeared. No albuminuria was noted at any time.

Case 2: A housewife, thirty-six years of age, was operated on June 23, 1927, at which time a gangrenous, perforated appendix was removed and a collection of pus was drained from the right lower part of the abdominal cavity. She had vomited repeatedly before operation. She was six months pregnant and the right side of the uterus was bathed in pus. Post-operative vomiting was persistent for two days. The first post-operative

day she received 2000 c. c. of normal saline solution containing 3 per cent dextrose. Next evening she expelled the entire ovum intact. She received 2000 c. c. of normal saline with 3 per cent dextrose this day; 3000 c. c. of the same mixture were given on June 25, 26 and 27, respectively. On June 27 her face was very puffy and the urine showed a moderate amount of albumin. None had been present on two preceding examinations. That evening she was very much worse and 500 c. c. of whole blood were given intravenously. She was complaining bitterly of thirst and a salty taste in her mouth, and was somewhat delirious. Water was started by mouth. On June 28 her mind was clearer and she seemed better. This day she was given only 1200 c. c. of normal saline with 5 per cent dextrose. By evening the edema had largely subsided. Subsequent urinalyses showed no albumin and she made a good recovery.

Case 3: A farmer, sixty-three years old, was admitted with a diagnosis of strangulated right inguinal hernia. He had vomited everything taken for two days. His stomach was washed out and he was given 1000 c. c. of physiological saline intravenously. His urine contained no albumin. His operation consisted of resection of a gangrenous loop of small intestine, with end to end anastomosis. He was given 500 c. c. of 5 per cent saline and 400 c. c. of normal saline intravenously a few hours after operation. When the stronger solution was run in he complained of a feeling as if he were "blown up all over," of trembling, and of severe pain in the lumbar muscles. Adding normal saline stopped these sensations. Nothing was given by mouth although he was complaining of thirst. The first post-operative day he received a mixture of 500 c. c. of 5 per cent and 1000 c. c. of normal saline in the morning, and 3000 c. c. of normal saline in the afternoon intravenously. He vomited incessantly but refused the duodenal tube. The second day, he was given 1000 c. c. of 2 per cent saline and 1000 c. c. of normal saline in the morning, and 1200 c. c. of normal saline in the afternoon. On this day his face was very much swollen, and his hands were moderately edematous. On the next day he was delirious. His right basilic vein was thrombosed for a distance of about two inches at the bend of the elbow. Water was started by mouth. The urine contained a heavy trace of albumin. Next day he was still delirious but the following day he was better. Two days later the edema was gone. From this point he made a good recovery.

REFERENCES

[1]Anderson, R. S., and Lockwood, R.: Influence of Treatment with Hypertonic Sodium Chloride Solutions in Patients with Acute Abdominal Lesions. Surg., Gynec., and Obst., 49:48 (July), 1929.

[2]Haden, R. L., and Orr, T. G.: Chemical Changes in the Blood after Intestinal Obstruction. J. Exper. Med. 37:377 (March), 1923. Reducing the Surgical Risk in Intestinal Obstruction. J. A. M. A. 85:813 (Sept. 12), 1925.

Essential Factors in Treatment of Intestinal Obstruction. J. Missouri Med. Assoc., 20:340 (Oct.), 1923.

[3]Keith, Norman M.: Intravenous Medication, J. A. M. A. 93:1517 (Nov. 16), 1929.

[4]Schleussing, H.: Statistics on Frequency of Thrombosis and Embolism before and after the World War, Klin. Woch. 8:2128 (Nov. 12), 1929.

[5]Adolph, C. H., and Hopman., R.: Increased Frequency of Thrombosis and Embolism and Its Relation to Intravenous Therapy, Med. Klin. Berlin 24:1792 (Nov. 16), 1928.

[6]Pritchard, H.: Intravenous Therapy. Brit. Med. J. 1:792 (Apr. 30), 1927.

[7]Titus, P., and Dodds, P.: Reactions Following Intravenous Injection of Glucose (Dextrose) Solutions. Am. J. of Obs. and Gynec. 14:181 (Aug.), 1927.

[8]Clarke, J. H.: Acute Cardiac Dilatation: An Ever Present Danger in Intravenous Injection, J. A. M. A. 89:21 (July 2), 1927.

[9]Todd, J. C.: Clinical Diagnosis, Philadelphia: W. B. Saunders, 4th Edition, p. 126.

THE NATURAL PERIODS OF THE REPRODUCTIVE CYCLE IN ALL PLACENTAL MAMMALS INCLUDING MAN*

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Introduction

The subject in full would include the determination of sex and the life phases of the reproductive organs from their origin until senility, but the purpose of this article is to simplify and correlate the latest facts and theories relating to the reproductive cycle.

Pouchet is quoted by Hartman as having said in 1847: "The phenomena of conception are brought about in a manner so mysterious that they furnish a vast field for the most diverse interpretations and the most extraordinary conjectures." The same holds good today. When through experiments or otherwise we learn the cause of any phase of the subject we find that there still remains another phase the cause of which is still unknown. It is necessary to keep constantly in mind that because a condition exists in one species it does not necessarily

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follow that it exists in all species. Before drawing conclusions from any experiment great care is necessary to determine whether or not the effects produced are really the same as those occurring in the normal functioning animal. Division and comparison of the reproductive cycle in the human female with that occurring in animals has not been successful and no one to my knowledge has divided the reproductive cycle of all mammals into like natural periods because such a division was impossible until the normal time of human ovulation was demonstrated.

The reproductive or genesial period in all mammals begins at or near maturity (puberty or nubility) and continues until the genesial pause. The word menopause is not used as it applies only to animals which menstruate.

Reproductive Cycle

The reproductive period is divided into reproductive cycles usually called estrous or ovarian, and uterine or menstrual cycles. In some animals it is necessary first to divide the reproductive period into breeding seasons before dividing into cycles.

The terms estrous, ovulation or ovarian cycle, menstrual or uterine cycle, estrous vaginal cycle, and mammary cycle, might at first appear synonymous. Estrous and menstrual cycles are only phases and estrus and menstruation are only periods within the reproductive cycle. Estrus is a fair term for the lower animals but is not definitely present in the human female and makes little reference to the uterus. Menstruation does not occur in most animals. Reproductive cycle then is the only comprehensive term that can be used to include all the changes which occur in all species including the human. This term is used by many authorities and Frank has divided it into fertile and infertile.

I have divided the reproductive cycle into four natural periods as follows:

(a) **First or ovuliferous period** (Ovarian period): This is the period of maturation and ovulation, estrus, and coition, and is mid-menstrual.

(b) **Second or uterine proliferous period** (Period of uterine growth): This is the premenstrual or pregravid; pseudopregnancy; or conception and pregnancy period.

(c) **Third or uterine rhexis period** (Period of uterine degeneration, menstruation and labor): This period may consist of only a minor rhexis, or of menstruation, or it may be a major rhexis or labor.

(d) **Fourth or uterine regeneration, lactation and rest period:** This is the period of regeneration, lactation and rest.

These four natural periods include estrus and menstruation. By placing the estrous and menstrual cycles under the general term reproductive cycle the similarity of reproduction in all mammals, including man, can be demonstrated. The general use of the expression Reproductive Cycle does not interfere with the terms menstrual cycle, commonly used in reference to the human female and the female of other primates, and estrous cycle used in reference to females of the lower animals.

By beginning the reproductive cycle with the period of maturation and ovulation and carrying it through its natural periods, which occur when reproduction (the real purpose of the cycle) takes place, it is easy to show that the same periods in miniature exist when reproduction does not occur. It also demonstrates that the same natural periods exist in the female of the human species as in the lower animals.

The duration and characteristics of these natural periods, however, vary in different species and may also vary within the species according to whether one or more than one reproductive cycle occurs within the breeding season as the animal is either monestrous or polyestrous. Variation in environment also is known to change the duration and characteristics of these periods. The occurrence of pregnancy greatly changes them and a very similar effect is produced in certain species by pseudopregnancy.

I will now describe each of the four natural periods of the reproductive cycle separately.

The first or ovuliferous period (Ovarian period)

Synonyms: Ovulation period, estrous period, third period of the estrous cycle of Heape, mid or inter-menstrual period, early pregravid or mid menstrual endometrial period.

Definition: The period during which ovulation (maturation and rupture of the follicle) occurs. Although estrus and coition may occur, conception or death of the ovum does not occur until the next stage.

Duration: Maturation of the follicle and its rupture usually lasts about three to four days but in some species only a few hours. Maturation of the ovum is often not completed until after rupture of the follicle and as will be seen under "cause" coition may hasten the rupture.

Time: In primates when menstruation averages twenty-eight days, actual rupture of the follicle usually occurs between the fourteenth and sixteenth (Shroeder) or on the nineteenth (Dickinson) day following the first day of the preceding menstruation; the formerly so-called "safe period" of the human female. Rupture may occur (rarely) on any day but its occurrence is extremely rare in the week just before menstruation.

Cause: The anterior pituitary follicle stimulating hormone* excites one or more large Graafian follicles to mature. The maturing follicle produces the follicular hormone.

The follicular hormone stimulates the tubular system (tubes, uterus and vagina); the tubes become more smooth and their peristalsis increases; the uterus enlarges slightly and its pregravid decidua is formed; estrual vaginal changes occur and (through the action of the follicular hormone upon the centers governing sexual desire) estrus and coition result. The act of coition further stimulates the ovary and hastens rupture of the maturing follicle and the escape of its nearly mature ovum. If coition does not occur, estrus is prolonged but the follicle in most animals eventually ruptures and even then, if coition occurs soon enough, conception usually follows.

Description: The mid-menstrual period is the period of ovulation, hence generally the "halfway period" between menstruations. This half-way period is noticeable in many human females. The symptoms are more or less menstrual-like pain or discomfort, and more or less bleeding. This bleeding occurs quite regularly in some monkeys and some other animals and may equal or exceed that of the menstrual period, according to Hartman, but there is probably no shedding of the endometrium as in true menstruation. The bleeding results from the uterine congestion produced by the ovulation.

There is normally a slight hyperplasia of the endometrium and the uterine glands are active, due to uterine stimulation by the follicular hormone.

Estrus or sexual desire is generally considered to be usually synchronous with ovulation but to precede ovulation in some species and to follow it in others. I believe that estrus normally precedes actual rupture of the follicle as indicated in my remarks on the cause of ovulation.

The human male and the male of some other domesticated animals through community environment or crowding have become over sexualized. This has led to interference with the normal estrous cycle of the female of these species. However there still exists in the human female a vestige of the normal estrus. Sexual desire is most marked during the four days preceding and following and during menstruation (deduction from Davis and Dickinson).

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* For clearness I have classified the anterior pituitary hormones as follows:

1. A. P. growth hormone (Evans' hormone).
2. A. P. follicle activating hormone (estrus inducing hormone—All; prolan A—Aschheim and Zondek; Rho I—Wiesner).
3. A. P. corpus luteum activating hormone (estrus inhibiting hormone, luteinizing hormone—All; prolan B—Ashheim and Zondek; Rho II—Weisner).
4. A. P. thyroid activating hormone (Theta—Crew and Wiesner) for increasing basal metabolism (All) and inducing metamorphosis (Ulenbuth).
5. A. P. breast activating hormone for milk secretion (?—Carnot and Bouttier) and the ovarian hormones thusly:

1. Follicular hormone (estrous hormone—All; female sex hormone—Frank and many; Alpha—Wiesner; theca—Zondek?; Theelin—Doisy).
2. Corpus luteum hormone (uterine sensitizing hormone for nidation — All?; Beta — Wiesner; granulosa hormone—Zondek?).

It is at its lowest during the week preceding and the week following the rupture of the follicle (Davis and Dickinson). The reason for this seemingly anomalous condition is unknown (see conception).

The vagina shows cornification of its epithelium in certain species.

The second or uterine proliferation period (uterine growth period)

Synonyms: Premenstrual period, pseudo-pregnancy, pregnancy, fourth period of the estrous cycle of Heape.

Definition: This is the period of uterine growth. Minor if the cycle is infertile—premenstrual or pseudo-pregnancy period—and major if the cycle is fertile—pregnancy period.

Cause: Ovulation occurs and the message is sent to the anterior pituitary by some unknown method (sudden cessation of follicular hormone?) An anterior pituitary hormone activates the corpus luteum causing the production in it of the estrous hormone in Man and some other species. Another anterior pituitary hormone in Man and some other species activates the corpus luteum and causes luteinization and the production of a hormone in the corpus luteum, which sensitizes the endometrium for nidation.

If the ovum is not fertilized it dies and further stimulation of the endometrium ceases and a message is sent to the anterior pituitary which stops the activation of the corpus luteum. The corpus luteum and the endometrium begin to degenerate, i. e., the next stage of the reproductive cycle begins.

If fertilization occurs and the ovum becomes attached to the endometrium (or other maternal tissue as tube or peritoneum) the placental hormone or hormones (trophoblastic hormone—Johnstone) carries its message to the anterior pituitary which stimulates the corpus luteum to further growth and the corpus luteum hormone keeps up the necessary endometrial sensitization for the completion of nidation.

Pregnancy after nidation is continued by the placental hormones (follicular, corpus luteal, trophoblastic, one or all), acting directly on the uterus or indirectly through stimulation of the anterior pituitary which may act directly through its growth hormone or indirectly through its two ovarian activators acting on the corpus luteum or the placenta.

The corpus luteum and the ovaries are not essential to the continuance of normal pregnancy after nidation; for ablation of the corpus luteum or metriculous double ovariectomy performed after nidation does not interrupt the pregnancy (All). Probably the parasitic action of the fetal circulation is sufficient for the maintainence of pregnancy (Burns). That the presence of the fetus is not absolutely necessary for the continuance of uterine growth is shown by hydatidiform moles (All). That the placento-uterine circulation often continues after death or expulsion of the fetus is shown in cases of retained placenta (Frank).

Description: it is best to describe the Proliferous Uterine Period under two divisions: (1) The infertile cycle which occurs when fertilization of the ovum has not occurred and (2) the fertile cycle, when pregnancy has taken place.

In the Infertile Cycle, development of the late pregravid (pre-menstrual) endometrium and death of the ovum take place and "pseudo pregnancy" may occur. In some species the pregravid endometrial development is so slight that this period is often considered one of rest, hence the terms anestrum and diestrum. In other species the development of the uterus, mammae, etc., is so marked that the term pseudopregnancy is used, and in some species the growth is so extensive that this false pregnancy cannot be distinguished from real pregnancy except by exploring the uterus. In cases in which the enlargement is not so great but still like pregnancy it is called an abbreviated pseudo-pregnancy.

The pregravid endometrium is a preparation for an expected pregnancy. It is not a preparation for menstruation. Menstruation or minor rhexis occurs because pregnancy has failed to take place.

In the Fertile Cycle development of the late pregravid endometrium, conception, nidation, and placental pregnancy take place.

Conception, in the human female is most

likely to follow coition occurring one week after the onset of menstruation, i. e., about one week before the average time for the escape of the ovum. Over 13 per cent of the coitions resulting in conception occur during menstruation (Dickinson), in spite of the probable infrequency of coition during this period. Menstrual blood is known to aid the motility of the spermatozoa. (Hohne q. b. Dickinson). The cause in the human female, of this paradoxical condition of conception occurring most frequently following coition one week before the usual time of ovulation and after the time of most marked sexual feeling is not known unless it be due to coition hastening ovulation (Dickinson) of an unusually vigorous ovum (Burns).

During pregnancy the maternal blood, urine and feces and the placenta constantly contain the anterior pituitary follicular and corpus luteal activating hormones, the follicular hormone and the luteal hormone in sufficient amount to produce specific reactions in immature and spayed mice, rats, guinea pigs, rabbits, etc., and as a result various tests for pregnancy and even for sex of fetus have been offered. Of these most worthy of special note are: Aschheim and Zondek's anterior pituitary urine test, Brouha's modification of this test and Frank's blood test for the follicular hormone.

Conception in the human female is a sort of an accident or a one to 300 chance, while in the lower animals conception is the rule following coition. One to 300 chance is based on the following rough averages: Married life 20 years (1040 weeks); conceptions, 5; full term pregnancies, 4; pregnancy time, 160 weeks; rest after labor, 40 weeks; 1040 weeks less 200 equals 840 weeks. Number of coitions at least 2 a week; 2 times 840 equals 1680. 1680 divided by 5 (number of conceptions) equals roughly 300 or 1 fruitful coition to at least 30 unfruitful ones. (Burns.)

Third or endometrial rhexis period (period of endometrial degeneration, menstruation and labor)

Synonyms: Minor endometrial rhexis (apparent rest), menstruation (minor rhexis with bleeding), major rhexis or labor, anestrum or diestrum, first period of Heape's estrous cycle.

Definition: This is the period of rhexis; simple and major. Simple rhexis and the more extensive rupturing and shedding called menstruation are now generally conceded to be a dismantling of the nest being prepared for pregnancy. The major rhexis, or dismantling of the completed nest, no longer needed, is labor.

Cause: Labor is due to an unknown cause, possibly the regression of the corpus luteal hormone or degeneration of the placenta; decrease in the supply of an anterior pituitary hormone, or, more likely, I believe, an increase in the posterior pituitary hormone.

Menstruation and the rhexis of pseudopregnancy, whether long or brief, is considered as due to the cessation of the influence of the corpus luteum hormone. (Possibly the pregravid endometrium may become over developed and rupture, at times.)

Fourth or uterine regeneration and rest period (period of minor regeneration and rest, or of major regeneration, lactation and rest).

Synonyms: First period of Heape's estrus cycle—anestrus or diestrum, proestrum, post-menstrual period, quiescent period.

Definition: The period during which the reproductive organs (particularly the endometrium which has just passed through labor, menstruation, or simple rhexis, return to their quiescent state and the period during which lactation occurs.

Cause: The involution of the pelvic reproductive organs and lactation are due to cessation of the corpus luteum and the placental hormones and the lessened activity of the anterior pituitary, corpus luteum and placental activating hormones.

Lactation is very probably directly due to an anterior pituitary breast activating hormone which has been held back by the corpus luteum or placental hormone. That the female reproductive organs are not essential to milk production, at least in some species, seems probable because some males nurse their young; and it would seem very probable if, as we believe, lactation has followed

labors preceded by double ovariectomies and labors followed by complete hysterectomies.

Lactation is prevented by retention of the placenta (Frank). After the onset of lactation the secretion of milk is kept up mainly, if not solely, by nursing or milking. Ovulation and menstruation are usually prevented by lactation. Non nursing usually stops the secretion of milk in a few days, and is usually soon followed by ovulation and menstruation, i. e., the anterior pituitary switches its activity from the breasts to the ovaries (Burns).

EXPLORATION AND CERTAIN OPERATIONS ON THE FEMALE PELVIS THROUGH CHOLECYSTECTOMY INCISION*

C. E. TENNANT, M.D.
DENVER

In presenting this purely technical subject the writer is well aware that it is nothing new and, no doubt, this operation has been practiced at times by some of those present today.

There are instances when a dual pathology is found to be present in the abdominal cavity and in such remote positions as would seem to require two or more separate incisions. These added incisions naturally increase the operative hazard, and the danger of a post-operative ventral hernia.

In these dual pathologies, unless some such method as is here suggested is utilized, a second operation at a later period might be required, the first being performed for its greater and more urgent clinical significance.

I have in mind at this time cases of cholecystitis, gastric or duodenal pathology in the female where, with this pathology in the upper abdomen, there also exists a uterine retrocession, or a moderate descensus. To best meet this dual problem the writer has, after completing the major operative work, placed the patient in the Trendelenburg position, passed the left gloved hand into the female pelvis and, after exploring the cavity, elevated the uterine fundus bringing it forward and in front of the viscera and directly against the parietal peritoneum; this in order to determine the most suitable site for the attachment of the round ligaments through the abdominal wall by what is known as the Gilliam method. With the tips of the fingers of the left hand pushing upward, the superficial bulge marks the site for a transverse incision extending one and a half inches to either side of the median line through skin and subcutaneous tissue and down to the fascia of the transversalis muscle. A sharp hemostat is then forced through the abdominal muscles and peritoneum, grasping the round ligament, which is being held in the fingers of the left hand, within its jaws at a point about one and a half inches from its attachment to the fundus. The ligament is then drawn through this puncture and sutured to the transversalis fascia, and a like course pursued on the opposite side of the median line. Care must be taken that the anterior superior surface of the uterus is held closely in contact with the parietal peritoneum while these ligaments are being sutured in order to prevent herniation of the viscera. By this method a better approximation is possible than by performing the same operation through a median subumbilical incision.

Other minor procedures may also be done, at the discretion of the operator, with short supplementary subumbilical incisions while using one hand to manipulate the female pelvic structures. It is obvious that extensive work cannot be successfully accomplished by this method.

The reverse of this operation may be done where a median subumbilical incision has been made for a pelvic pathology, and a silent cholelithiasis, without common duct complications, is found. The right hand may be passed up along the peritoneum to a point opposite the lower end of the gall-bladder,

*Read before the Fifty-ninth Annual Session of the Colorado State Medical Society, Greeley, Colo., Sept. 3, 1929.

a stab wound made through the abdominal wall directly over the distal end of the gall-bladder, the gall-bladder is then sutured to the parietal peritoneum, then opened, the stone removed and drainage introduced. This procedure may also save the patient a return to the hospital for many years.

DISCUSSION

Leonard Freeman, Denver: I think we owe Dr. Tennant our thanks for presenting to us an unusual operation, and particularly for the trouble he has taken in preparing this very excellent film, which needs no apology at all.

Films present to us in so graphic a manner the way an operation is done, that they are worth while taking the trouble to produce and to present before any society. We do that sort of thing entirely too seldom. The more strings we have to our bows, the better. We do not always use them all, but we like to have them.

This operation that Dr. Tennant has described, according to what he says himself, has a very limited applicability. It can be used only in retro-displacements of the uterus. But we do not pay very much attention to retro-displacements at the present time, because we do not look upon them as seriously as we used to; consequently the demand for operation upon them is not very great. Besides that, the operation is a shot in the dark, and shots in the dark are not regarded as a very good thing in modern surgery. Anyone who has attempted to pick up any sort of a tissue or a foreign body in a closed cavity where he cannot see what he is doing, must see the great difficulty of accomplishing anything. Where we have a lot of tubes, ovaries and intestines floating around, it is a pretty difficult matter to be sure what we have hold of. Nevertheless this operation has an occasional place, and is a good thing to have up your sleeve.

Now, as regards the reverse procedure of operating upon the gall bladder from a lower abdominal incision, that is a different question. That has more justification as an operation. Gall stones are more important than retroversions of the uterus; and besides that, you can see what you are doing. The gall bladder is brought up by the hand within the abdominal cavity, through a buttonhole incision, so that you can see it, and you can catch hold of it while you are looking at it, and you can remove the stones under your eyesight as well as your touch. This operation, however, also has a limited application, which must be thoroughly understood. You cannot, with such an operation, remove the gall bladder, and a cholecystectomy is called for much more often than a mere drainage. It must be regarded as an emergency operation, which is to be undertaken only when the circumstances demand it, such as the condition of the patient following an extensive pelvic operation. It is only applicable when the gall bladder is long enough and loose enough so that with the hand within the abdominal cavity you can bring it up through the buttonhole incision and when there are no adhesions present to amount to anything; and when there is no stricture of the cystic duct, and no stones stuck in the cystic duct, which might lead to a subsequent stricture; and when there is no suspicion of malignancy of the gall bladder.

Dr. Tennant in his paper speaks of sewing the gall bladder to the abdominal wall. This, I never do, and I think the most of us never do it. We empty the gall bladder of the stones which it may contain, fasten a tube within the gall bladder when you wish to drain it, and sink the gall bladder, so as to avoid embarrassing adhesions after the operation. When there is only a single stone in the gall bladder, and these cases are not very uncommon, there is but little inflammation, and the patient has few if any symptoms. Natural drainage of the gall bladder, in other words, is good. Under such circumstances I open the gall bladder, remove the stone, and sew the gall bladder up tight, a tube is fastened to the fundus with a small catgut stitch so that it can be removed when the stitch absorbs. But even this comparatively simple operation may have its dangers. All operations have their dangers.

For instance, at a meeting of a surgical association a number of years ago, a prominent surgeon, who, by the way, was the inventor of this particular gall-bladder operation, attempted, at a clinic, to demonstrate his procedure. After completing a severe pelvic operation, he ran his hand up under the abdominal wall, and said, "Gentlemen, I will now demonstrate to you the manner in which the gall bladder may be easily attended to through a buttonhole incision." There was nothing the matter with the gall bladder. He merely wished to demonstrate his procedure. He made the buttonhole incision, and held the gall bladder in his fingers, and as he opened it, before he could do anything else, the gall bladder slipped and retracted into the abdomen, spreading its contents within the cavity. A nasty mess resulted, and it took him some time, through an enlargement of the incision, to get things corrected. The moral, I think, is evident.

I wish to thank Dr. Tennant.

Dr. Tennant (closing): I want to say that I speak of this method as being an operation which one might have up his sleeve in certain justifiable cases. It is not a method to be chosen in routine operative work. There are some cases in which it would be embarrassing, and especially where there are adhesions in the pelvis. As for the difficulty of recognizing the structures in the pelvis by touch, any one with reasonable experience and judgment can readily isolate a round ligament and especially is this true when the tissue is brought into sight through this buttonhole incision.

The object I had in suggesting the attachment of the gall bladder to the peritoneum before opening the gall bladder was to avoid just such a mess as described by Dr. Freeman, and good surgery can be done by this method. At times during a general abdominal exploration we find a single stone in the gall bladder, which is a rather innocent affair, and by the method suggested it can be readily taken out and spare the patient a return for its removal at a second operation. Of course, I do not advocate cholecystostomy in the presence of cholelithias is when a definite incision is made for pathology in the upper right quadrant for then a cholecystectomy is the operation of choice.

ACUTE ANTERIOR POLIOMYELITIS

(Infantile Paralysis)*

B. B. JAFFA, M.D.
DENVER

Acute Anterior Poliomyelitis is typically a disease of the summer months. While no cases have been reported in Denver, a large number of cases have been reported from the west coast and with the influx of tourists into Denver, it is inevitable that some cases will appear. Physicians should therefore be on guard to prevent the spread of the disease with the occurrence of an epidemic in Denver.

Successful treatment of this disease depends entirely on the early recognition of the infection. Much has been written of treatment by serum, but it is probably generally accepted that this is of value only in the early stages of the disease, that is, if the central nervous system has been damaged to the extent that paralysis appears, the serum is of little or no value.

Unfortunately, the early symptoms are not sufficiently typical to call attention to the disease except in the presence of an epidemic. It is well, however, to keep these symptoms in mind during the summer months, when infantile paralysis is occurring in different parts of the country.

The Onset

The patient becomes ill, with a fever ranging from 100° to 102°, the pulse rate is increased to a greater extent than the temperature accounts for. A dull headache and gastro-intestinal disturbances appear. The child becomes listless and loses its appetite. Diarrhea or constipation may appear. Vomiting may occur with the gastro-intestinal disturbance. The patient is usually drowsy but can be aroused. These symptoms, while fairly constant may or may not all be present.

Physical Signs

On observation, the child shows a greater prostration than the temperature would seem to warrant. There is an anxious expression; the face is flushed and quite frequently there is a pallor about the nose and mouth. There may be a coarse tremor. Thus far, the symptoms may be those of any acute infection. Often the patient complains of pain in the neck or along the spine. This pain is accentuated by stretching the neck. Pains in the legs or arms may appear suddenly. Groups of muscles may become very sensitive to pressure. Hyperesthesia of the skin may appear. Occasional scarlatiniform rashes with minute spots on the mucous membranes may occur, but are not characteristic. There is a slight rigidity of the neck without retraction of the head. The head may be tilted on the neck, but the neck does not bend on the shoulders. When resistance is encountered in bending the head, the child complains of pain. When the back is bent, the spine is held rigid, the child bending from the hips. Kernig's sign is absent. A cerebral tache is present. The blood picture is not particularly characteristic. While there may be an early leukocytosis, there is generally a leukopenia with a relative lymphocytosis later in the disease.

Reflexes

Reflexes are generally asymmetrical and any variation from the normal is usually a tendency towards diminution or abolition. Paralysis usually appears within the first three days and is characteristically flaccid. The initial paralysis is usually the final one, successive involvement occurring only rarely.

Spinal Fluid

Early examination of the spinal fluid is important. It is clear or only slightly turbid and is under increased pressure. There is an increase in cells of from 50 to 250, but reaching occasionally a high point of 700 to 800. In early examination the cells may be largely polynenclear. Later lymphocytes predominate. There is a slight excess of globulin which increases progressively and persists after the disappearance of the cells. Differential diagnosis must include consideration of epidemic meningitis, tuberculous meningitis and epidemic encephalitis.

*From the Department of Health and Charity, City and County of Denver.

With regard to serum treatment, if a diagnosis can be made before the onset of paralysis, it would be well to attempt treatment with convalescent serum. However, it must be borne in mind that the serum is weak in antibodies and large doses must be given both intraspinally and intravenously.

PUBLIC HEALTH NOTES

EDITOR J. W. AMESSE, M.D.

Public health delegates invited to visit Mexico

An unusually attractive feature is offered to delegates to the fifty-ninth annual meeting of the American Public Health Association which will be held in Fort Worth, Texas, from October 27 to 30. They and their families are invited by Dr. Rafael Silva, chief of the Department of Health of the Republic of Mexico, to visit Mexico City, enjoy the hospitality of Mexican public health officials, visit the president of the republic in his famous castle and enjoy many other festivities. To facilitate acceptance of this generous invitation a special train will be at the disposal of visitors from midnight on October 30 until November 8. The rates for the round trip are only about half those that a private traveller would have to pay. The American Public Health Association may reasonably expect a large accession of members between now and the end of October.

Poliomyelitis in California

There is a serious epidemic of infantile paralysis in Los Angeles county. Coloradoans visiting California at present are advised to leave their children behind. At the same time we shall be well advised to keep our eyes wide open for signs of the disease in this state. Early diagnosis and early administration of convalescent serum are still the two great services which scientific medicine can offer to the victims of this disease in its acute stage. The timely article which we publish on page 297 of this issue is designed to aid the earliest possible recognition of the disease.

Undulant fever

At the close of 1929, undulant fever had been reported from every state in the Union; the total number of cases investigated by the Public Health Service, since 1925, was 1,423, of which over 1,000 had been reported since January 1, 1928. Probably many cases of prolonged fever heretofore unclassified, are actually invasions of this disease, and its triad of symptoms, chills, fever and sweats, must be borne in mind if we are to avoid grave errors in diagnosis.

While the mortality rate is low, the economic aspects of this disorder are exceedingly important. Not only the continued disability, lasting from three to twelve months, but the support of the patient's family, so frequently made an obligation of the public, and the attendant loss in live stock, combine to place undulant fever among the major health problems of our time.

LIBRARY NOTES

EDITOR J. J. WARING, M.D.

It would be impossible in this column to enumerate all the important works in the library in the field of Diseases of the Chest, but the following selected list will serve to bring to the attention of those members of the Society interested particularly in this subject old material whose existence they may have forgotten and new material of great importance.

1. Baldwin, E. R.: Tuberculosis; bacteriology and laboratory diagnosis, 1927.
2. Jacquerod, Marc. The Natural Processes of Healing in Pulmonary Tuberculosis. 1927.
3. Rollier, A.: Heliotherapy, 2nd ed., 1927.
4. Webb, G. B., and C. T. Ryder: Recovery Record for Use in Tuberculosis, 3rd ed. 1927.
5. Spencer, F. R.: Laryngeal Tuberculosis. 1927.
6. Manasse, Paul: Anatomische Untersuchungen uber die Tuberkulose der oberen Luftwege. 1927.
7. Myers, J. A.: Modern Aspects of the Diagnosis, Classification and Treatment of Tuberculosis. 1927.
8. Brown, L.: Rules for Recovery from Pulmonary Tuberculosis, 5th ed. 1928.
9. Winslow, C. E. A.: The Life of Herman M. Biggs. (Is catalogued under subject Tuberculosis, Prevention, History.) 1929.

In addition to these the following new works of great value relate to childhood tuberculosis:

1. Myers, J. A.: Tuberculosis among Children. 1930.
2. A volume published by the Phipps Institute of Philadelphia on Tuberculosis in Childhood, being

collected reprints by Opie, McPhedran, Hetherington, etc.

3. St. Engel and Pirquet: Handbuch der Kindertuberkulose, 2 vols. 1930. The first volume of this was recently reviewed in this column by Dr. Emanuel Friedman and the second volume will shortly be reviewed.

On Surgery of the Chest, the library offers.

1. Alexander: Surgery of Pulmonary Tuberculosis. 1925.
2. Brunner. Alfred: Die Cherurgische Behandlung der lungentuberkulose. 1924.
3. Complete File of the Transactions of the American Association of Thoracic Surgeons.

On the shelves of the library are the following journals:

1. American Review of Tuberculosis.
2. Tubercle.
3. Beitrage zur Klinik der Tuberkulose.
4. Zeitschrift zur Tuberkulose.
5. Bulletin of the International Union against Tuberculosis.

The first two journals always carry a valuable section of abstracts of important related articles culled from journals all over the world.

Finally, annually one volume of the series of Progressive Medicine has a fine section by Dr. F. T. Lord of Boston on Diseases of the Chest, reviewing the important articles of the preceding year. Also, one volume of the Practical Medicine Series has a similar section by Dr. Lawrason Brown of Saranac Lake.

Dean Cutter's Visit

On the evening of Thursday, July 17, Dr. Irving S. Cutter, Dean of the Medical School of Northwestern University, addressed a special meeting of the Denver County Medical Society at the Cactus Club on the subject, "The History of Puerperal Fever." As always an earnest but unsuccessful effort was made to notify all members of the Society of this meeting. Thirty-five men partook of the dinner preceding and enjoyed a delightful and scholarly address.

For the past two weeks Dr. Cutter has been lecturing at Denver University on various phases of Public Health Education. The subjects of his addresses were:

"Advance in Control of Communicable Diseases."
In this lecture he took up yellow fever, plague, cholera and means used to control these diseases; what the United States Public Health and other health officials are doing to protect the public from these diseases.

"Heart."
In this lecture he gave some history of Harvey's work, some of the fundamental facts of heart disease, Particularly what the individual can do himself.

"Goiter."
Gave the history of early work on thyroid and other internal secretion, and some of the modern views as to goiter and its prevention.

"Cancer."
Stressed the importance of early diagnosis.

"Women in Medicine."

"Contributions of American Surgery to Medicine."

"Common Cold."
Emphasized the dangers of the common cold, attendant financial loss, its causes, and the importance of rest in treatment and prevention of complications.

"Sinuses."
Emphasized the importance of conservative treatment.

"Tonsils and Focal Infections."
Emphasized the importance in causing heart trouble, rheumatism and the like.

Too much praise cannot be given to the University of Denver for offering this course of lectures and to Dr. Cutter for the successful execution of his assignment.

BOOK REVIEWS

An Introduction to the History of Medicine with Medical Chronology, Suggestions for Study and Bibliographic Data. By Fielding H. Garrison, A.B., M.D., Lieutenant-Colonel, Medical Corps, U. S. Army, Fourth Edition, revised and enlarged: W. B. Saunders Company.

Interest in medical history, for the English-speaking doctor, was awakened in the early part of this century by Sir William Osler and Sir Clifford Allbutt. That Allbutt and Osler were the two greatest physicians of this age and that their success was largely founded on knowledge of medical history should serve as a lesson to all of us.

Garrison has well written of these two Regius Professors that "Allbutt was, in fact, the spiritual aristocrat, just as Osler was an essential democrat in professional relations." The "spiritual aristocrat," a profound and learned scholar, wrote to Garrison after the publication of the third edition of his "History of Medicine"—"I have just given the last of a short course of University Lectures here on the history of medicine and I seize the first spare moment to thank you most cordially, most profoundly, for the extraordinary service of your great book. It is one thing to use a book casually, as a great work of reference; it is another to have to use the whole book for intimate and general preparation. Every day I was more and more astonished at its fullness and completeness in detail, and yet I had Haeser, Neuberger, Pagel, etc., all at my elbow. How you collected all your detail and never missed a date that one wanted, is a mystery. The book must have cost you years of time. And there is so much good reading in it—not mere dry chronicles . . ."

Such an authoritative review cannot be improved for the new edition. This "great book" can be truly termed a "cyclopedia" in the original sense of that word—the "complete education of a child," or of a tyro in medical history.

One need but read the Preface to the Fourth Edition to have revealed to him the extensive learning and philosophic mind of the author. Here is an excellent paragraph—"For the medical student and practitioner the study of the history of his profession, dealing, as it does, with all aspects

of human culture, affords one of the best outlets for ideation, and is also one of the best offsets to the mental staleness and ennui which result from narrow specialism and infatuation with a single idea."

To the new volume is added a section on medicine in prehistoric times, and recent medicine in Europe, and in the Americas, is brought completely up-to-date, including the lessons from the World War.

An appendix which contains a chronology has been amplified and brought up to 1928. As Garrison is an accomplished musician and an authority on music, it might be suggested that mention of the Latin hymn of the eleventh century, dedicated to St. John, should find a place among superstitious beliefs. The verse was thought by the monks to have the power to ward off colds, and should a monk sneeze or grow hoarse he hastened to repeat—

Ut queant laxis
Resonare fibris
Mira gestorum
Famuli tuorum
Solve polluti
Labii reatum
Sancte Joannes.

The Italians substituted "do" for the first syllable "ut" in this verse, and from the first syllables in each line are derived the sound names for the notes of the singer's scale—"do," "re," "mi," etc.

An educated man in France is said to know his "Moliere;" an educated physician or surgeon must know his "Garrison." The work is so complete and so satisfying that every medical man should have Garrison's "History of Medicine" on his desk and devote every spare moment to its perusal.

GERALD B. WEBB.

The Normal Diet. A simple Statement of the Fundamental Principles of Diet for the Mutual Use of Physicians and Patients. By W. D. Sansum, M.S., M.D., F. A. C. P. Director of the Potter Metabolic Clinic, Department of Metabolism, Santa Barbara Cottage Hospital, Santa Barbara, California. Third Revised Edition. St. Louis, The C. V. Mosby Company. 1930. Price, $1.50.

This compilation of talks to patients includes discussions on the various factors that constitute a normal diet, viz.: Adequate bulk, alkaline ash, carbohydrates, calories, proteins, mineral salts, vitamins and fluids. The chief value to the book for physicians is its example in method of imparting such information to lay people. The author emphasizes the importance of alkaline ash foods in the prevention and treatment of vascular decay. His animal experimentation and clinical results are encouraging. Much more needs to be done to establish or disprove this contention.

The sample menus have a practical value in prescribing for overnourished or undernourished patients. The discussion of indicators for urine reaction is clear and helpful to patients whose health depends upon a narrow margin in urine reaction.

C. F. KEMPER.

Principles of Pathology for Practitioners and Students. By H. D'Arcy Power, M.D., F. R. C. S., and William W. Hala, M.D., D. Appleton & Co., New York.

The work differs from the usual text books on pathology both in style and treatment of the subject matter. It is intended primarily for students and practitioners and the exposition is quite readable. One sees the influence of Tendeloo's treatise on General Pathology in the novel discussion of physiological and pathological life processes, especially from the chemical standpoint. Considerable stress is laid on the influence of heredity on the cell as a factor in disease.

The text is marred by numerous typographical errors particularly evident in words from foreign tongues. The punctuation, likewise, is defective. The illustrations in general are good and the plates excellent. There is an appendix giving valuable hints on recording data and photographing specimens.

PHILIP HILLKOWITZ.

Treatment of Skin Diseases in Detail. By Noxon Toomey, M.D., F.A.C.C. 512 pages, large octavo. Price, $7.50. Lister Medical Press, St. Louis, 1930.

Success in the treatment of diseases of the skin depends quite as much upon the manner in which therapeutic measures are employed as upon the character of the measures themselves; a book, therefore, which deals in detail with dermatologic therapeutics should be of value.

This volume covers the field very completely giving consideration apparently to all of the new as well as to the long established methods of managing cutaneous disorders.

The author states that he is offering only the results of his own thought and experience, but the absence of references is a serious defect in a book that should be fully authoritative if it is to be anything more than a compendium. Then, too, it is marred by its literary style particularly noticeable in long, involved sentences and the use of strange words that distract the attention of the reader from the subject matter.

But for those whose interest in dermatology is limited to suggestions for treating the occasional case, the book will serve very well.

A. J. MARKLEY.

New and Nonofficial Remedies, 1930. Chicago: American Medical Association, 1930. P. 481. Price, $1.50.

The value of this little reference work is too well known to demand emphasis. Our readers, we are sure, are already accustomed to consult its pages both for descriptions of the acceptable newer preparations and for references to the reports on preparations that are found to be unacceptable. Among the more important revisions that appear in this edition are those of the general articles, Barbital and Barbital Compounds, Digestive Enzymes, Cod Liver Oil and Cod Liver Oil Preparations, Ovary, Pituitary Gland, Radium and Radium Salts, and Serums and Vaccines. Among the new preparations descriptions of which appear for the first time in this edition are: Bismarsen, which is sulpharsphenamine bismuth; Dial-Ciba, which is diacetylbarbituric acid; Calcium Gluconate-Sandoz, a more palatable and less irritating preparation of calcium; Atoquinol-Ciba, a cinchophen derivative; Pitocin and Pitressin, solutions respectively of the oxytocic and pressor principles of the pituitary gland; Viosterol (the Council name for irradiated ergosterol) in the forms of Viosterol in Oil 100 D, which is irradiated ergosterol dissolved in vegetable oil, and Cod Liver Oil with Viosterol 5 D, which is cod liver oil with its vitamin D potency enhanced by addition of viosterol.

J. ROSSLYN EARP.

Secretarial Notes and Comment

Edited by Harvey T. Sethman, Executive Secretary

FROM SHERIDAN

COLORADO contributed eight guests to the Twenty-eighth Annual Session of the Wyoming State Medical Society, held July 14 and 15 at Sheridan under the genial generalship of Dr. Earl Whedon, Wyoming Secretary, and his assisting committees.

The delightful informality of the Old West pervaded the warm welcome extended equally to official and unofficial representatives of the Colorado Society. Officers of our Society sincerely trust that Wyoming doctors will give us an opportunity to repay their hospitality at Pueblo in September.

On Sunday evening, July 13, we were entertained at the Sheridan Country Club at a smoker given by the Sheridan physicians. The following morning all were conducted on a tour of inspection through the United States Veterans' Bureau Psychopathic Hospital, where a most interesting and instructive psychopathic clinic was held by the resident staff. The staff then served luncheon at the hospital before the meeting adjourned to the Sheridan Elks' Club for the afternoon business and scientific program. That evening a banquet and card party was tendered to all members and guests and their ladies at Lodore, in the foothills of the Big Horn mountains.

On Tuesday morning the program opened with medical and surgical clinics at the Sheridan County Memorial Hospital. The Wyoming House of Delegates convened later in the morning and invited Colorado representatives to sit in as fraternal delegates. Here the Colorado delegation experienced the only sad note of the meeting and was deeply humiliated to learn that recent malpractice suits against leaders of the Wyoming profession had been supported by Denver physicians after plaintiffs had failed to find support for their claims in the profession of their home state.

A luncheon at the Memorial Hospital preceded the final sesslons of the House of Delegates and the Scientific Session.

Attending from Colorado were Drs. J. Rosslyn Earp, C. F. Kemper, George P. Lingenfelter who conducted a dermatological clinic, O. S. Fowler and his son, Mr. Freeman D. Fowler, medical student, Elizabeth Newcomer, who delivered a paper on the scientific program, and Mrs. C. A. Conyers; and Mr. Harvey T. Sethman, executive secretary.

TAXATION AGAIN

MR. Clem W. Collins, manager of revenue for the City and County of Denver, whose newspaper interview criticizing professional men as "not paying an equitable tax if the basis be ability to pay" roused our Committee on Public Policy to express the professions's resentment, has replied with a courteous letter explaining reasons for his attitude.

While Mr. Collins has evidently gone to considerable pains to assemble figures portraylng average assessments made against Denver physicians, the Public Policy Committee feels his reply avoids the issue. The committee so feels because Mr. Collins' figures do not provide a comparison with assessments against classes of individuals other than physicians. He gives no averages for the other professions in Denver, or for classes of persons in business and mercantile pursuits.

His figures are interesting, and our committee does not question the care with which they were prepared. We do, however, question the accuracy of his assembling, as representative of the medical profession, all names listed in the classified section of the telephone directory under the heading "Physicians and Surgeons." The most casual perusal of this listing shows that it includes many cultists who are not doctors of medicine, and to whom our previous letter of course did not refer when we discussed assessments against doctors and pointed out the countless thousands of dollars of free service given by the profession to municipal institutions. Mr. Collins' list, one also finds, includes many who formerly were in active practice but who now, due to advanced age or other reasons, are retired. We do not have the opportunity Mr. Collins has to assemble assessment averages, so we have no figures to offer in refutation, but we firmly believe that were these two groups eliminated from his figures, the averages would increase startlingly.

There is one group of figures in preparation by the National Committee on the Costs of Medical Care—the figures showing average net incomes of physicians. These figures, when completed, probably will form the only answer necessary to Mr. Collins' latest letter. Recent advices from the American Medical Association indicate that the National Committee has had considerable difficulty in obtaining these figures, and we are as yet unable to present them.

With this explanation of our own committee's

attitude after a study of Mr. Collins' figures, his letter is presented in full for what it is worth:

Mr. Harvey T. Sethman,
Executive Secretary,
Colorado State Medical Society.

Dear Mr. Sethman:

I have delayed answering your letter of May 17th in order that I might accumulate more facts in regard to the assessment of doctors in Denver, and I trust the facts which I am now prepared to give you will serve, at least to some extent, to give you the viewpoint of the assessor in this matter.

To begin with, I wish to assure you that I am neither unmindful nor inappreciative of the excellent service and altruistic service rendered by the doctors to the community. I am in a position to know something of the unselfish service rendered by the doctors to the poor, but without desiring to depreciate this service in the least, may I state that it has always been my understanding that doctors charge patients in accordance with their ability to pay. The same service may be rendered to two patients, one of whom will pay nothing and the other will pay enough to compensate for the service to both. I believe the people generally recognize that this is fair, and any prosperous doctor is a proof of the principle.

This practice is not only true of doctors but of other professions. Lawyers render a great deal of free service to indigents. The Legal Aid Society is maintained by the legal profession for the purpose of prosecuting or defending civil suits of worthy patrons who are unable to pay for attorney's fees. Attorneys are also appointed by the courts to defend indigent litigants in criminal cases. Certified public accountants of Denver give thousands of dollars of service every year to agencies of the Community Chest and other charitable and religious organizations and similarly the other professions do altruistic work in their respective lines, yet the fees charged by each to their clients are sufficient to cover all of these costs and leave most of the practitioners a fair return besides.

The classified telephone directory lists 498 doctors under the title "Physicians & Surgeons" in Denver. In analyzing their schedules I find that they have returned tax schedules showing the following ownership of properties:

Money, Notes and Credits

3	doctors—Average	$8,000	$24,000
10	doctors—Average	1,832	18,320
180	doctors—Average	235	42,370
305	doctors		None
Total 498	doctors—Average	$ 170	$84,690

The above shows that according to the returns of the doctors, all of the doctors in Denver have in money, taxable investments and book accounts, only $84,690, and 305 have nothing at all.

Libraries

115	doctors—Average	$ 66.00	$ 7,610
383	doctors		None
Total 498	doctors Average	$ 15.00	$ 7,610

I will leave it to you to say whether or not you think the doctors are over-assessed on their libraries and whether or not you think they are returning full value for their books. Perhaps after you have given this some thought you will be willing to say that your statement that we are over-assessing the doctors on their libraries, may be subject to amendment.

Machinery, Instruments and Equipment

1	doctor		$ 5,580
10	doctors—Average	$1,546	15,460
299	doctors—Average	188	56,140
188	doctors		None
Total 498	doctors—Average	$ 155	$77,180

Furniture and Fixtures

327	doctors—Average	$96.00	$31,380
171	doctors		None
Total 498	doctors—Average	$63.00	$31,380

I would suggest that you inventory the furniture and fixtures of a few of the doctors and see whether you think they should be assessed for less than the figures given.

Total Assessment

4	doctors—Average	$8,260	$ 33,040
32	doctors—Average	1,719	55,010
291	doctors—Average	388	112,810
171	doctors		None
Total 498	doctors—Average	$ 403	$200,860

When we consider the income of the gentlemen engaged in this profession we are forced to the conclusion that a tax of less than $6,500 from all of them is hardly commensurate with the tax that a merchant, manufacturer or real estate owner pays.

Again I wish to repeat that this is not intended for an attack upon the doctors, for as stated before, the same thing is true of all professions. Neither do I place the blame on our professions, it is the fault of our system of taxation, and I repeat that if our theory of taxation is that the citizens should pay in proportion to their ability to pay, that the professions are not paying in proportion to others.

Very truly yours,

CLEM W. COLLINS,
Manager of Revenue.

PROGRAM CHANGE

SINCE the July number of Colorado Medicine was published, the Committee on Scientific Work has added one paper, to be delivered during the morning session of Wednesday, Sept. 10. The paper is entitled "Vertigo Due to Errors of Refraction," and will be delivered by William C. Bane, M.D., Denver. Discussion will be opened by J. W. Thompson, M.D., Pueblo.

AN APPRECIATION

THE following letter was recently addressed to Gov. William H. Adams by order of the Committee on Public Policy:

My Dear Governor Adams:

The Public Policy Committee of our Society has directed me to write to you expressing the sincere appreciation of the medical profession of Colorado for your steadfast allegiance to the judgment of our state courts in the matter of the execution of the Ralph Fleagle gang of bandits and murderers.

The medical profession, next to the banking profession, has perhaps had the deepest interest in

the outcome of this case of any group of citizens. The medical profession cannot forget that this group of bandits ruthlessly murdered a doctor while he was ministering to the wounds of one of them. The ethics of our profession demand that a doctor unhesitatingly respond to an emergency summons, regardless of risk to himself. When a doctor thus carrying out the high ideals of his profession is slaughtered mercilessly, the entire profession is roused to anger which words cannot convey.

We take no stand for or against capital punishment, for our own ranks are not united on this subject generally. But our laws now include capital punishment as the extreme penalty for murder, and we believe that the extreme penalty was richly justified in the instant case. We believe we know what mental and physical strain this case has brought to you. We made no appeal to you while the case was pending because we declined to add to that strain. But we now wish you to know that we, as a profession, appreciate and thank you for your courageous action.

Very sincerely,

FOR THE COLORADO STATE MEDICAL SOCIETY,

HARVEY T. SETHMAN,
Executive Secretary.

MEDICAL SOCIETIES

This department of Colorado Medicine is set aside for reports of recent meetings, announcements of future meetings and accounts of other important activities of the county and district societies, composing the Colorado State Medical society. Every meeting of every local society should be reported. If your society is not represented, see that your secretary reports the next one, or that some other member is appointed to the task. Other societies want to know what your society is doing.

San Luis Valley Medical Society

Dr. C. S. Shelton, formerly of Antonito and now a resident of California, was the principal speaker at a special July meeting of the San Luis Valley Medical Society. Dr. Shelton delivered a paper on Endocrinology and illustrated his lecture with lantern slides. The meeting was held in the office of Dr. C. A. Davlin.

* * *

Prowers County Medical Society

The July meeting of the Prowers County Medical Society had as its special guests ten physicians from Fort Lyon Veterans' Bureau Hospital and was held in Lamar, July 2. The meeting followed a dinner at the Elks' Club and was devoted to a Symposium on Tuberculosis. Dr. C. A. Newland of Springfield presided.

* * *

Arkansas Valley Medical Association

At a recent conference of the officers of the Arkansas Valley Medical Association and additional members representing various towns of the valley, it was decided to dispense with a midsummer meeting of the association this year, Dr. L. E. Likes, president, has announced. Owing to the fact that Pueblo will in September entertain the Colorado State Medical Society and due also to other conflicting dates, it seemed advisable to bend all efforts toward aiding the Pueblo meeting, and to concentrate for the Arkansas Valley organization on a mid-winter or early spring meeting in Colorado Springs.

Larimer County Medical Society

A special meeting of the Larimer County Medical Society was held June 1 in the Pathological Laboratory of the Colorado Agricultural College.

Dr. James Percy of Los Angeles, a personal friend of Dr. J. A. Matlack of Longmont, gave a splendid talk on the removal of carcinoma with cautery. He used slides and reels in illustrating his lecture. Dr. Percy's methods were greatly appreciated and an interesting discussion was held among the thirty members present.

LOWELL LITTLE, Secretary.

COLORADO OPHTHALMOLOGICAL SOCIETY

January 18, 1930

Dr. William C. Bane Presiding

Retino blastoma (bilateral)

Dr. William M. Bane showed a child, K. M., aged seventeen months who was examined on March 1, 1929, on account of an obstruction of his right tear duct. This trouble was remedied by passing a probe into his nose. No examination of the interior of his eyes was made at that time.

On September 12, 1929, the pupils were dilated with homatropin and cocain for the purpose of doing a retinoscopy, because a squint of the right eye was at that time noticeable. This examination showed a complete retinal detachment in the right eye, suggestive of a tumor. A plus 19.0 sphere was at that time needed to get a clear view of the left fundus. This examination was repeated for confirmation on October 8, 1929.

On December 16, 1929, it was noted that the detachment of the left retina had increased, and the picture was practically the same as that of the right eye. Transillumination seemed to be less distinct from below. A diagnosis of bilateral retino blastoma was made.

Since the case was shown before the Society, both eye balls have been enucleated and the diagnosis confirmed microscopically.

Discussion: Drs. Crisp, Finoff, and O'Rourke agreed that certainly the clinical picture was unmistakably that of retino blastoma and advised immediate enucleation.

Rethke Pouch Cyst (Pituitary)

Dr. William Finoff presented, R.I., male, aged nineteen years, who consulted on February 16, 1929. He was one of twins, who weighed four pounds at birth. His brother weighed nine pounds and died at three months from cause unknown. The chief complaint was diminished vision of the right eye of three weeks' duration. The left eye had been blind for three years. He had had frontal and occipital headaches and vomiting for the past four months. He attributed his loss of vision to a fall from a lumber pile five years ago. Following the fall he had had several headaches and vomited intermittently for about a year. He was poorly developed physically, but was mentally normal.

Ophthalmoscopic examination: In the right eye the nasal side of the disk is pale, the vessels in the retina are normal. In the left eye the disk is white, the vessels in the retina are normal (simple optic atrophy).

Refraction: Right eye, plus 0.50 sph. combined with plus 0.25 cyl., Ax 90° equals 0.4 plus.

X-ray: There is erosion in the pituitary region, the posterior clinoid processes are not seen. Opacities are seen about an inch posterior to the sella turcica.

X-ray diagnosis: Tumor in the pituitary region about the size of a plum.

The laboratory findings were negative, including the Wassermann reaction.

The case was referred to Dr. A. W. Adson of the Mayo Clinic for operation which was performed on March 23, 1929, when a Rethke Pouch Cyst (pituitary) was enucleated in its capsule.

Convalescence was slow but satisfactory and when the patient was seen again on September 6, 1929, the fields had increased in size. Vision equalled 0.1 and continued to improve until on November 14, 1929, vision R with plus 0.62 Cyl. Ax. 90° equaled 0.5 plus. The patient was seen again on January 1, 1930, complaining of a decided drop in visual acuity. He had spells of nausea but did not complain of headaches. The vision was 0.1 and unimproved. The fields show slight contraction and temporal hemianopsia for red and green.

Intracranial tumor

Dr. W. H. Crisp reported briefly with regard to two cases of intracranial tumor. The first patient was a woman of forty-four years, who had come on account of defective vision and attacks of headache and vomiting. She had lost between thirty-five and fifty pounds during the previous year. Ophthalmoscopy showed tortuous vessels, edematous discs (much more in the left eye) and patches of exudate near the discs. The corrected vision was right, 20/30; left, 20/60. The right field was slightly narrowed above, while the left was contracted in practically its whole circumference, but greatly downward and inward. Subnormal mental activity complicated the finer details of the field examination, but the left blind spot seemed to be decidedly enlarged. The Wassermann was negative, and a tentative diagnosis of tumor of the frontal region, especially affecting the left frontal lobe, was made upon the basis of the eye examination. Jacksonian epilepsy later developed on the left side, and a decompression operation disclosed a large inoperable glioma in the right frontoparietal area.

The second patient was a man of thirty-nine years, who came complaining of persistent headaches, nausea, and dizziness. The fundi were normal, and the family physician stated that the general and neurological examination was negative. Correction of an astigmatic error improved the vision of each eye from 20/30 to approximately 20/20. It was subsequently learned that the headaches and other symptoms had persisted, although the patient had failed to report further. About a month later the patient had an attack of unconsciousness, and within a few days a moderate swelling of the discs became noticeable to the neurologist. An inoperable tumor of the frontal lobe was found at operation.

Puncture of an artery

Dr. William M. Bane reported an accident which happened preparatory to performing an extraction of cataract. A long needle was introduced into the orbit along the nasal wall, and 2 c. c. of 1 per cent novocain was injected for the purpose of blocking the ciliary ganglion. Almost immediately the patient complained of very severe pain behind the eyeball. Swelling of the upper and lower lids became extreme and the skin quite tense. The needle had undoubtedly punctured an artery and allowed rapid hemorrhage to infiltrate the orbit. The operation naturally had to be postponed. The pain was acute and lasted several hours. The swelling and discoloration had not disappeared in a week's time, but absorption gradually took place and the operation for cataract was performed about ten days later. No bad effects resulted from the accident.

DONALD H. O'ROURKE,
Secretary.

WOMAN'S AUXILIARY

Benefit Theater Party

The Woman's Auxiliary to the Medical Society of the City and County of Denver is sponsoring a benefit theater party at Elitch's Gardens Theater, Sunday evening, August 24. Members and families of the County and State Societies are cordially invited to attend and participate. Season ticket holders may exchange reservations from their regular evening to the Auxiliary party. Mrs. Kenneth D. A. Allen, social chairman, will have charge of arrangements, and can be reached by telephone at KEystone 8622.

MRS. G. W. MIEL,
Publicity Chairman.

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE AND HOSPITALS

A description of the various units of the Colorado General Hospital should be of interest, for the arrangement and correlation of the various parts has been considered ideal by many who should know. Visitors who have seen other similar institutions have commented favorably on the general arrangements which are similar to other institutions in some ways, but unique in others.

The various units of the hospital are built in the form of connected wings, and occupy the administration building in part, and the hospital proper. The former, five stories high, and with a surmounting tower, is the center for various attached wings. It faces north, long way east and west with the hospital wings attached on the south.

This arrangement allows the hospital wards the much desired south exposure and permits the surgical staff to use the north light by day, since the operating rooms occupy the entire fourth and fifth floors across the north side. While the operating rooms are not part of the hospital proper they are closely connected through the administration building by a corridor on each floor.

There are four operating units, with the scrub rooms and sterilizing units separate, between each pair. Adequate lighting in addition to the north daylight, also for night use, and the observation galleries entered from the floor above, afford medical students opportunity to see and hear the surgeons. These galleries are shielded by plate glass slanting partitions which afford clear vision but protect the operating field.

One of the rooms is especially equipped for the application of plaster casts in their many uses, and is used for this purpose solely. Another room may be completely darkened for operations which require intense illumination, or visual examination of body openings and cavities.

The hospital possesses a very complete outfit of operative instruments, kept up to date, and added to as required. So it is rarely necessary for an operator to bring his own instruments unless he prefers, or has special equipment. A room for dressings with a battery of adequate sterilizers adjoins the instrument room. These are across the corridor from the operating rooms.

A cystoscopic room completes this floor. This is equipped with adequate instruments and x-ray apparatus, that proper examinations may be made on this type of case.

A corridor on the fourth floor leads south to above the hospital wings opening on a porch which is used as a solarium, used to some degree in this hospital. A similar corridor extends from the administration building to the cross corridor of hospital wings to the third, second and first floors. The cross corridor again turns southward to the ward proper at each end. This comprises therefore two wings each with south exposure.

To utilize space to the best advantage there is a minimum of single or private rooms, the larger space is divided into wards with individual units of metal partitions and curtains. The sides of the wings facing each other are largely used for the utility rooms, conserving the outer sides for patients' rooms. As they are now conducted, the various wards have a total capacity of 150 patients. Each ward is devoted in the main to certain types of cases.

On the third or top floor in the east wing is the obstetrical ward. Some of the gynecologic cases are also cared for here. The delivery room is on the cross corridor, close by, but separate, and it can be isolated if necessary.

On this floor in the opposite wing is the pediatric ward, with small divisions containing several beds, and separate rooms, which may be isolated. Contagious diseases have been handled in these rooms very satisfactorily, and without cross infection to other patients, due largely to the efficient nursing care.

On the second floor in the separate wings are the male and female surgical wards. On the floor below are the respective medical wards. These wards are quite similar to those previously described, with the rooms containing several beds separated by fixed metal partitions; and a few single rooms for the more serious cases.

A separate elevator service provides for the transportation of bed patients to the various floors. And on the cross corridor of each floor is a ward laboratory and small rooms for teaching small groups of medical students and nurses. The instruction of these students is the main reason for the existence of this hospital, and proper provision for this instruction was provided for in the beginning.

On the main floor of the west wing is the physical therapy department with adequate equipment, and in charge of an efficient technician and her assistants. This department is kept busy all the time as its assistance is sought in many of the cases under treatment. This is one of the newer methods of treatment which requires rather expensive apparatus and special training to obtain the best results. It is impossible in this description to describe the kinds of treatment and the types of cases which may be benefited. But in a later article such a discussion will be attempted.

In the basement beneath the cross corridor of the hospital is the kitchen. Its various units are connected with dining rooms which are on the same floor, in each hospital wing. This part of the hospital should be seen by all visiting physicians, which unfortunately is not the case. Clean, well lighted, by day from adequate windows, at night by electricity, painted in light, attractive colors, well screened against flies, and well ventilated by exhaust fans, it is a unit worthy of attention.

Trays for the patients are made up here according to the needs, and special diets are produced under the direction of a dietitian. The student nurses carry out the latter duty as part of their training. The trays are sent to the various floors of the hospital wings by electrical dumb waiters which avoid the confusion so often seen where food must be carried up on the passenger elevators. Also the trays are ready to serve when they arrive which prevents delay.

This description has been given that our own physicians of this state may have a better idea of a part of their State University situated on the campus in Denver which should be of particular interest to them and about which they may be asked questions by the laity.

Religion, medicine and the cults

"Prayer is a mental cartharsis and one of the finest kinds of therapeutics for borderline mental cases. Faith is a summons to the will and hope is the release of the emotions. All these are emphasized by the cultists with good results. The technique which is employed at the various shrines where faith healing 'miracles' are performed is in the hands of every physician and every minister, but too few employ it."

So says Dr. M. H. Liehtliter, pastor of the First Congregational Church of Columbus, Ohio. The neurotie should not be handed over to the operation of cultists. He really is ill; he does need treatment. The cultist treats him, at least, with a patience and sympathy which he does not find elsewhere.

One is tempted to retort: "Well, if the cultist is doing sueh a good job, why should we interfere?" But this would not be fair to our reverent mentor who does very freely acknowledge the value of the higher edueational standards of the medieal profession. On the other hand we feel some hesitation in endorsing his plan for "intimate co-operation between the medieal profession and the clergy." There are, we suspect, a good many elergy who would fail to agree with Dr. Liehtliter that "prayer is nothing more than this 'talking-out' proeess." There are not wanting physicians with patience, understanding and psyehiatric skill who know how to use the language of theology in suitable cases and how to avoid it in others. Dr. Lichtliter eertainly does not elaim to add magieal gifts to such as these. What exaetly has the organized Chureh to offer us that we have not got already?

WYOMING SECTION

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EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT

SAFETY FIRST

Make your medical and surgical records as you do your work each day. Cases of medical and surgical malpractice are increasing each year in number and whereas a few years ago in the west such cases seldom were filed, they are now becoming numerous. No longer is it a news item that her doctor has been sued for one hundred thousand dollars because some woman's leg was not as pretty as she thought it was before some bad accident.

Who starts these suits? In most recent cases it has not been the patient. It has been a so-called lawyer. Recently two of our Wyoming doctors have had suits started against them for damages by patients who subsequently had been treated in Fitzsimons Hospital at Denver.

Just as a dead cow quickly attracts coyotes, so a sick veteran in this hospital seems to attract the attention of certain shyster lawyers of the lowest type. There must be hungry members of the legal profession enjoying favors in that institution, otherwise they could not ply their trade. Something is wrong on the inside, as well as on the outside. We insist that there be a change in the treatment accorded the members of the regular medical profession by some persons in this institution, and feel certain that those in authority will see that these conditions are corrected at once. On the other hand it is up to every doctor in this Rocky Mountain region to keep the best of medical and surgical records as a matter of protection as well as for scientific use.

Records must be carefully made in a clear, concise manner each day on all your cases showing your diagnosis and every item of the treatment. Note the improvement or other changes of the patient from time to time. Especially note any refusal to follow out your orders and its effects.

These original records can be introduced in court and admitted as evidence or used to refresh your memory while you are on the stand and being plied with subtle questions by some quick-witted lawyer.

At the same time the medical profession of the Rocky Mountain States should demand that conditions be changed and that the air be freed of these pests who live on their ill-gotten gains from the survivors of the late World War. American tax payers are not keeping up hospitals like Fitzsimons in order to protect the less reputable members of the legal profession.

Legal disbarment is the action demanded of the legal by the medical profession that this disgrace be eliminated. We are confident that there will be no delay. The records speak for themselves and we all know that the rank and file of the legal profession are a type of men fully as honest and true as their medical brothers. That they deplore the disgrace brought on their profession by a very small minority who for the possibility of a fee will start a suit against any doctor on the flimsiest pretext. We firmly believe the ethics of the legal profession will protect the honest scientific medical men from suits in court by these gangsters posing as lawyers.

It is up to the Denver Bar Association to take the proper steps to stop the conditions as outlined and we have faith that their committee will promptly so act.

PARTNERS AND PALS

In the early life of the West, each one of the "he men" who made western history had a partner and pal.

A man did not start out in the untrodden West all alone. He wanted a partner and a pal.

The dangers ever present tried the character of every man and the result was that birds of a feather flocked together. Men with the same desires, aspirations and ultimate goals in life were life-long partners and pals. Through storms or sunshine the bonds of friendship were welded not after the present-day method of a short electric contact but by the blows of adversity, by hunger, privation and even death; but they were partners and pals.

Today the doctor who is not a member of his State Medical Society is a lonely being. He is out all alone. He needs partners and pals. Not realizing how much he is missing he goes on in his selfish way. Not recognizing the help and comfort that comes from contact with his fellow member he reminds us of an old dissipated and worn out bull driven far off from the herd, over pastured and afraid to come near his companions.

Just what thoughts go through the brow of such a forlorn creature none can tell, but one thing is certain: the heifers in the herd are happy and don't even miss him. So it must be for the doctor outside of our Medical Society. He must miss the companionship, the new friends found each year at our annual meetings; the renewal of old friendships which grow dearer as the years pass on, also our Journal with its helpful articles. He never sees these. Poor fish!

As a business proposition any keen commercial mind can see the advantage of spending ten dollars a year for membership in the Wyoming State Medical Society when by so doing he has acquired a finger in a $7,000 jack pot in times of trouble.

In other words the old members of the State Society have for several years paid $5.00 a year of their yearly dues into a medical defense fund which has now reached the sum of $7,000.00 all in U. S. government bonds.

You, a new member, have never paid a cent into this fund before, and yet as soon as you join you have as much right, title and interest as the oldest member in this fund. And in times of trouble you have partners and pals all over Wyoming.

"Gee, it's great to have a pal in the everyday affairs of life; but when some threatening danger hangs over your head it's simply wonderful then to have a pal."

Every physician outside of the Wyoming State Medical Society owes it to himself to join the Society at once.

Ask for an application blank from the state secretary for your neighbor and try to get him in at once. He needs a pal and you need one more. Get him now!

E. W.

TWENTY-EIGHTH ANNUAL MEETING

The twenty-eighth annual meeting of the Wyoming State Medical Society was brought to a close on Tuesday, July 15.

The Sheridan County Medical Society acted as host and it feels well repaid for its efforts. When it is understood that the day before the meeting was to be held a general and heavy rain storm swept the entire state, making many of the roads almost impassable, it is truly surprising that the attendance was so large.

Think of traveling in mud by auto from one to two days in order to attend and you can understand the spirit of the Wyoming doctors.

We doubt if any state in the Union has as large an attendance of doctors' wives as was evident at this meeting. The social side of life is part of our meetings and one that the ladies as well as the men enjoy. This year the mornings were given over to clinics and the afternoons to scientific papers and free discussions.

The commanding officer of the U. S. Veterans' Hospital No. 86 of Sheridan, Dr. Carson, and his able staff presented as fine a clinic, with cases to show the actual conditions in several types of insanity and nervous diseases, as was ever presented to any of our largest societies.

To say that the Wyoming doctors enjoyed this clinic is putting it mildly. As one Wyoming doctor said: "They just ate it up, they got more real help on insanity in that half day than in months of study."

The papers were clear cut, to the point and the cases were so typically true to the descriptions that the papers could be understood and retained in the memory.

The educational value of this clinic can not be measured and then the inspiration was a revelation to those who had not witnessed the most modern treatment of these sick veterans of the war.

The dinner furnished by the staff was equal to the finest supplied by any large hotel. The

government did not pay for it, the staff furnished it.

In the afternoon the mayor, C. P. Story, and Dr. C. E. Stevenson, president of the Sheridan County Medical Society, welcomed the Society to Sheridan.

The mayor said: "I have no key for the city to give you as we have no locked doors, but you will find the latch string hanging out and every thing is free to you."

Dr. C. W. Jeffrey, the president, delivered his annual address which will be found in full on page 309 of this issue.

The secretary read his annual report.

Dr. Herbert L. Harvey of Casper read a paper on "Diathermy in the Treatment of Pneumonia." In this paper he gave his personal experience and in some future issue we expect to publish this paper.

Dr. John B. Potts of Omaha read a fine paper on "Asthma, Secondary to Focal Infection." This paper will also be published soon.

The closing paper was by Dr. W. W. Yates of Casper on "Emergency Treatment of Eye Injuries." This paper was not written for the eye specialists but for the general practitioner. This paper will also be published later. The weather was warm in the afternoon but after an auto drive of twenty miles we met at the foot of the Big Horn Mountains at Ladore at Story.

Here at Ladore, the Sheridan County Medical Society entertained the members of the State Society, their wives and guests with a trout and chicken dinner in the cool pine-laden air of Chief Red Cloud's favorite feast grounds.

The expressions of satisfaction that followed the passing of great platters of deliciously cooked trout and chicken and everything else that goes with a Wyoming mountain dinner paid the Sheridan boys for providing the dinner.

After dinner speeches followed and then the bridge games and by midnight a chain of lights along the beautiful highway marked the path as we returned to Sheridan.

Tuesday morning the golf championship games were played and Dr. W. W. Horsley won the low score and the possession of the cup for the first year.

Surgical clinics at the Sheridan County Memorial Hospital followed and were well attended while down in the sun room Dr. George P. Lingenfelter of Denver conducted a most interesting skin clinic, which was also crowded.

The House of Delegates met at 11 o'clock and listened to reports of officers and councilors and elected the officers for the year.

Dr. E. L. Jewell, the president-elect, became the president.

Dr. R. H. Sanders of Rock Springs was elected president-elect.

Dr. W. W. Yates of Casper was elected vice president.

Dr. Evald Olson of Meeteetse was re-elected treasurer.

Dr. Earl Whedon of Sheridan was re-elected secretary.

Dr. J. H. Goodnough of Rock Springs was re-elected councilor for a three-year term.

Dr. Geo. O. Johnston of Cheyenne was re-elected delegate to the American Medical Association, with Drs. Earl Whedon of Sheridan and C. W. Jeffrey of Rawlins as alternates.

The Medical Defense Committee were re-elected: Drs. Earl Whedon, Sheridan; F. A. Mills, Powell; Chester Harris, Basin.

Rawlins was selected as the place for our 1931 meeting.

Rock Springs also invited the Society to meet there.

The incoming president, Dr. E. L. Jewell, was empowered by the House of Delegates to select a Committee on Public Policy and Legislation which will be announced later.

A delightful lunch was served by the Sheridan County Memorial Hospital, after which the House of Delegates worked on important matters up to the time for the scientific meeting.

Dr. Yates' paper of Monday afternoon was fully discussed.

Three papers were read and discussed.

"Spinal Anesthesia," by Dr. W. W. Horsley of Lovell; "Results of Perineal Prostatectomy," Dr. Edwin Davis of Omaha; and "The Elimination of Unsuspected Malignancies in Making a Diagnosis," Dr. Elizabeth Newcomer of Denver.

These papers were discussed freely by the members and visitors and greatly added to the meeting.

The Sheridan doctors' wives entertained the visiting ladies with luncheons, bridge games and drives.

The Auxiliary of the Wyoming State Medical Society held its annual meeting over which the president, Mrs. Evald Olson, presided in a delightful and efficient manner.

Mrs. R. H. Sanders of Rock Springs will be the president for the next year.

Mrs. F. A. Mills of Powell was elected president-elect; Mrs. E. G. Denison of Sheridan, vice president; Mrs. M. L. Crandall of Rawlins, treasurer; Mrs. N. C. Nelson of Cheyenne, secretary.

The Sheridan meeting of the Auxiliary was one of the best held since the organization and our ladies are yearly making greater efforts to build up their organization.

The meeting was greatly indebted to outside doctors who by their presence and helpful discussions added spirit to the meetings.

Among those who were out of state guests were: Drs. C. F. Kemper, George P. Lingenfelter, Elizabeth Newcomer, J. R. Earp, O. S. Fowler, and Mr. H. T. Sethman, executive secretary of the Colorado State Medical Society, all of Denver, and Drs. J. B. Potts and Edwin Davis of Omaha.

It was especially gratifying to the State Society to have the members of the Colorado Society with us in our meeting, and we thank them for their visit.

The doctors and their wives are on the return trip to their homes and, we trust, taking with them not only new ideas and helpful suggestions but pleasant memories of the days spent in Sheridan.

DR. EARL WHEDON, Secretary.

Salvaged from the Mental Hygiene Congress

Psychiatrist.—Freud, in a discussion of the marriage relation, discusses the need for mutual adjustment and illustrates the manner of adjustment by reference to the relations observed between two porcupines. When they were too close to each other they pricked themselves; when too distant they grew cold. They finally adjusted themselves by finding just the right distance to maintain between them, not too far to become cool toward each other, nor too near, to be liable to prick each other. That, concludes Freud, must be the achievement of a successful marriage.

Social Worker.—An excellent analogy indeed. Marriage should be a state of "porcupinquity," so to speak!

PRESIDENTIAL ADDRESS*

C. W. JEFFREY, M.D.
RAWLINS, WYO.

To the Members and Friends of the Wyoming State Medical Society at Their Twenty-eighth Annual Meeting: Greetings:

To deliver a presidential address and not to border on boredom, I wish first to relate a little incident which occurred in the army. On a hot Sunday morning the regiment was lined up for church services and the chaplain was ready to address the boys. He said, "I am not going to keep you long this morning, but in this war I wish to give you two pieces of advice: Trust in the Lord and keep your bowels open. You are dismissed."

A subject that has been brought to the attention of all medical men during the last few years is "The Passing of the Family Doctor." Every medical magazine and pamphlet has wrtiten articles on this regrettable subject, and in some of them it seems to lay most of the blame upon medical men. In an analysis of this subject it would seem to me that most of the censure should be placed upon the changes that have been wrought in the last twenty years. Also a large amount of the blame can be placed upon the populace of the communities.

First, the easy mode of travel and the long distances that can be covered in a short space of time. Trains, autos, and even airships can carry patients into the medical centers and most of this valuable work that could be done by the physician or surgeon in the home community is taken from him to the clinics and the reputed specialists of the city, thus depriving the home doctor of many deserving fees which leave his community. Therefore, the old family physician with his world of knowledge is passing. He may just eke out a little better than a living, while he sees his professional brothers in the city getting the larger fees and he sees his practice slowly but surely passing from him. Therefore he must either retire or specialize and go to the city. The blame is not upon the medical profession but upon the change of the times and the patients themselves. I feel that this situation applies to the young men refusing to locate in the smaller and backwoods centers after they have finished their medical education. They see that most of the really worth while practice can come to the cities and medical centers, and there is no use locating in some small community and trying to stem the tide of this flow of patients to the cities. Who of us who are located in moderately small towns do not see this exodus of patients monthly? Most patients would rather take some relative or friend and go to the city and receive their treatments than to have the said specialist come to their home town and advise and operate. So it goes, and I feel that in time there will be fewer medical men in the country places and most of the patients will journey to the cities and medical centers for their treatments. There seems to be no remedy for this condition but just a change in the mode of living and transportation.

Others may give papers on medical subjects, experiments or experiences, but you can read about them from books or magazines. I would like to bring the matter of an active legislative committee before the medical society for your consideration. All large businesses and groups of workmen have their representatives who look after their interests at all legislative meetings. I believe that the Wyoming State Medical Society should have a very active legislative committee to represent us at every meeting of the Wyoming State Legislature. Their duties should consist of assisting the passage of good and equitable laws for the health and protection of the people of the state of Wyoming; to attempt to defeat any legislation which does not demand the highest standard of scholastic requirements for practitioners as recognized by most states; to repeal all antiquated laws pertaining to medical practice, and to obtain a revision of the Wyoming Medical Practice Act. I fail

*Delivered before the twenty-eighth annual meeting of the Wyoming State Medical Society, Sheridan, Wyo., July 14, 1930.

to find that there have been any changes or advancement in the State Medical Practice Act of Wyoming and we are failing to protect the interests and health of the large majority of the people of the state by not insisting on a higher standard of entrance for all practitioners who wish to treat, in any manner, the ills and misfortunes of our people.

Laws have been passed and are now on our statutes which are of no credit to Wyoming or the medical profession. For instance: First, The Wyoming Annual Registration Act for physicians with the collection of a fee of one dollar is a petty affair and class legislation. Next is the law which requires every male to be examined and secure a certificate before securing a marriage license and allows the female party of that contract to go unexamined. Such a law is absolutely nonsensical and absolutely class legislation. Such legislation should either be repealed or what is better, should demand that both contracting parties should be examined.

There is another law which is unfair and which affects all of you very vitally. In the settlement of an estate of one of your patients who has passed, do you know where your claim for the payment of your care and treatment in the last illness is classed? After the administrator and the undertaker have been fully satisfied, then if there are any funds left in the estate, you share proportionately with the remaining creditors. I do not see why the attending physician should not share equally at least with the administrator and the undertaker. Probably they feel that you should have no loss in your practice, but it has been wisely said, that if you could remain long enough in a community that your mortality rate would be 100 per cent.

The Vaccination Law for the protection of the people of Wyoming from smallpox is a joke in this state. Its enforcement is nil unless there is a threatened epidemic in the vicinity. It has been several years since the school children of my city have been forced to be vaccinated before they could attend school. As far as it concerns the medical profession financially it is well to allow them to continue in such a manner, as some day in the near future there will be an epidemic of smallpox and every case is worth a great deal more financially to the physician than the small fee for the vaccination. The great medical profession is the only profession, trade, or business that is endeavoring to keep itself out of practice by teaching the public how to care for itself with preventive medicine, hygiene, and public health; endeavoring to force it down the throats of the unwilling populace. Do not misunderstand me; I am still a disciple of Hippocrates, but failure to impress these and other facts upon the people of my community causes me, as I know it does each one of you, to feel that we are trying to care for an ungrateful public.

The Chiropractic Act which was passed by our last legislature had no opposition. The American Medical Association Bulletin of October, 1929, in referring to chiropractic says:

"Attempts were made in ten states and the District of Columbia to create separate boards of examiners for chiropractors and to pass separate chiropractic practice acts. The attempts were successful in but one state, Wyoming. The new Wyoming chiropractic law creates a board of chiropractic examiners of three practicing chiropractors. Then it proceeds to explain of what chiropractic consists. The law provides that the chiropractor shall observe and be subject to all state and municipal regulations relating to the control of contagious and infectious diseases; shall be permitted to sign death certificates and shall, as to any and all matters pertaining to public health, report to the proper health officials the same as any other practitioners. Chiropractors may not use the prefix 'Dr.' or 'Doctor' but must use the title 'Doctor of Chiropractic.' The law requires an annual registration fee and provides for the issue of licenses by reciprocity to persons licensed to practice chiropractic under the laws of any other state having requirements equal to those provided for in this law."

This paper has just taken into account some of the legislation which has been brought to my attention in the last few years during my practice of medicine in the state of Wyoming. No doubt there are many more laws that should be repealed or revised; and other legislation which should be introduced and passed to protect the health of the populace and assist the medical profession in its care.

In all my observation it seems to me that

the people as a whole absolutely assume no responsibility for the health and protection of themselves but positively place this burden upon the medical profession.

How is this legislative committee to be rewarded for its work and time? Some method should be found perhaps by an extra assessment every year or every other year, upon all members of the Society, and I know that every medical man who has the profession and the protection of the Society at heart should be willing to contribute to carry on this great legislative work. Probably the expenses of this committee could be borne by the Society and sufficient funds taken from the treasury. The Medical Defense Fund is growing each year but every member should be protected by some other indemnity company, and the Wyoming Medical Society has such a company connected with the Society. Other methods could be suggested by the House of Delegates to carry on this work.

In closing, one other predicament has occurred to me while practicing the great art of medicine in Wyoming: The lack of protection which is shown the profession. Whenever prosecution is desired against any cult for infringement upon the gullible public in your community, and this prosecution is fostered by the local society or group of medical men, then the majority of the people seem to feel that we are a jealous lot and that this particular quack or cultist is hurting our business.

Would it not be possible to select a Prosecution Committee of medical men from our membership. Whenever said cultist or quack endeavors to practice illegitimately, have the local group collect all evidence and prepare same and send it to this committee who should investigate, and, if proper, institute prosecution to relieve this burden from the local practitioners. Then it would seem that the Wyoming State Medical Society would be handling the prosecution through its agent, the Prosecution Committee. The expense of such procedure should be borne by the local group.

It is a well-known fact throughout the state that osteopaths are endeavoring to prescribe medicines, write prescriptions, and administer narcotics, which is absolutely against the Medical Practice Act of Wyoming. It is known that they have even attempted to obtain liquor permits.

I sincerely trust that I have suggested matters of some merit and that there will be some action taken at this meeting, or at least future action will be stimulated for the assistance and protection of the medical profession of the state of Wyoming.

I know of no state in our nation where medical practitioners have more of the essence of true heroism than have the doctors of Wyoming. They are an indispensable part of a rugged people. They are safeguarding and maintaining the health and well being of the inhabitants of this young and growing state. In doing this they supply that degree of happiness and contentment which good health alone can give. They have chosen their field of endeavor upon the crest and on the foothills and plains of the Rocky Mountains. They have not the pleasant climatic conditions of a Florida or a California. This is a state of long and severe winters, and our doctors take it as part of their profession to undergo hardship, trial and tribulation to give care and assistance to ailing mankind. Medical men have been in the vanguard always in pushing back the barriers to civilization. When the story of the western state of Wyoming is written, which has to do with the period of the present, I feel sure that the medical profession will have no cause to feel other than extreme pride for the part it has taken. If the word "service" can be applied with all its full meaning to any group of business or professional men, it must be applied to the medical group. They serve under all conditions and during all hours. They labor to eliminate pain and to alleviate human misery. To you, gentlemen of the medical profession of the state of Wyoming, should be all praise!

RESULTS IN PERINEAL PROSTATECTOMY *

An Analysis of Three Hundred and Twenty-three Consecutive Cases

EDWIN DAVIS, M.D.*
OMAHA, NEBRASKA

Prostatectomy, like all other surgical procedures, has a two-fold purpose, the prolonging of life and the relief of suffering. In analyzing the results of prostatectomy, with the purpose of determining what is to be expected from this operation, we are therefore primarily interested in (1) the immediate mortality rate, and (2) the late functional results. For obvious reasons, the second of these considerations is almost as important as the first.

In answering the question as to what prostatectomy has to offer to the patient, we must be guided by statistical data, covering the mortality rate and the percentages of immediate and late complications, as well as the percentage of satisfied or well patients. Data for such a purpose may be best obtained by an analysis of a series of similar cases, handled in the same manner and preferably by the same diagnostician and the same surgeon. The larger the series, the less the inaccuracy in the conclusions. It is my purpose briefly to present two tables summarizing the immediate and the late results in a consecutive series of 323 cases of perineal prostatectomy under sacral block anesthesia. Since this paper is intended merely as a brief presentation of operative results, all details of diagnosis, preparation and operative technique have been purposely omitted. In a recent publication[1] I summarized the immediate and late results in a series including 176 cases of perineal prostatectomy under sacral block anesthesia. The tables here presented include the above data, plus the additional information gained from 147 subsequent cases, similarly handled.

Immediate operative results

Prostatectomy is no longer the hazardous procedure of former years, with a mortality rate of 20, 30, or 40 per cent, although this idea still persists to a very considerable degree, in the minds of the laity, and of many members of the profession as well. Authentic figures, available from several urological clinics, go to prove that the risk of this operation, during comparatively recent years, has been reduced to almost nil, so that the statistics of prostatectomy, upon the aged, may now compare very favorably with, for instance, the statistics of herniotomy, upon the young and robust. There are three essential factors, which have contributed largely toward this conspicuous lowering of the mortally rate of prostatectomy. These are (1) proper pre-operative preparation, (2) sacral block anesthesia and (3) complete hemostasis.

Preliminary Drainage. The first, and the most important of these, preliminary drainage, is a subject which has been dwelt upon in recent years in many publications by competent authorities, and the importance of which has become too well recognized to require discussion at this time. The neglect of this most essential phase of the subject of prostatectomy will have, as its inevitable consequence, an appalling mortality rate. Each patient in this series, upon entering the hospital, was advised that the period of preliminary bladder drainage averages three weeks. Many of them spent a considerably longer period in the hospital prior to the operation, while a few were sent home with suprapubic drainage tubes for periods ranging from one to several months. In no other way than by attending to this important item with scrupulous care and rigid insistence, is it possible to avoid unnecessary prostatectomy deaths. Even in the case of patients in apparently splendid condition, and with satisfactory renal functional tests, I have adopted a ten-day preliminary drainage period (with normal temperature) as a minimum, and deviate from this rule under no circumstances. Patients insisting upon immediate operation, and fretting because of the delay, are advised that they are at liberty to go elsewhere.

*From the Department of Urology, University of Nebraska College of Medicine. Read before the twenty-eighth annual meeting of the Wyoming State Medical Society, Sheridan, Wyoming, on July 15, 1930.

Sacral Block Anesthesia. It may be stated without exaggeration that the sacral block method affords an ideal form of anesthesia for perineal prostatectomy. In a word, sacral block anesthesia is easily and quickly administered, it carries with it no hazard, and is entirely dependable. In fact (as figures cited below will show) the sacral block method may truthfully be said to be infallible in producing results, if properly administered. This method is also admirably suited for suprapubic prostatectomy, although, for this route of approach, additional local infiltration anesthesia of the abdominal wall must be provided. It is quite important to point out with emphasis that sacral anesthesia differs essentially from spinal anesthesia in being extra dural, while the latter is intra dural, and carries with it a certain hazard of its own. Other than this statement, the details of technique of sacral anesthesia have been purposely omitted since this subject has been fully covered elsewhere.[2]

Assuming familiarity with the technique, the complete sacral block injection may be carried out with comparative ease in about ten minutes' time. The risk is negligible, in that there has not been an anesthesia death during the entire series; neither has there been a reaction of consequence. Although slight reactions, characterized by a moderate drop in blood pressure and by more or less pallor and perspiration, and more rarely by nausea, are not uncommon, there has not been a single instance in which the reaction was in any measure alarming.

The chief objection to the sacral method in the hands of different observers, has been the rather small percentage of cases in which there has been inexplicable failure to produce satisfactory anesthesia. The figures here presented, and those presented in a former paper published in 1924, are of interest in this connection, and tend to throw some light upon the cause of this occasional failure. In this former paper[3] I reported a series of thirty consecutive cases of perineal prostatectomy under sacral block anesthesia. Among this series, three were complete failures, while four required additional gas inhalation anesthesia during the final stages of enucleation. Thus, seven out of thirty, or 23.3 per cent, were unsatisfactory for reassons not understood. In the present series, there has not been a single case requiring gas inhalation anesthesia during the last 172 consecutive cases; and out of the last 230 cases, gas has been necessary during the final stages of enucleation in one instance only. Thus the percentage of failure has been reduced from 23 per cent to 0.4 per cent. Since in all instances the same drug in the same concentration has been employed, and since there has been no deliberate modification in the technique of injection, the only logical conclusion is that through practice, the anesthetist has learned to place the needles more accurately. In other words, it is possible for the anesthetist to be mistaken in considering that the needle point has been properly placed within the caudal canal or in the foramina, and the percentage of failures may thus be adequately explained upon a technique basis, without recourse to the various anatomical and physiological theories which have been advanced. It may, therefore, be conservatively stated that sacral block anesthesia for perineal prostatectomy is free from risk and is uniformly efficient when properly administered. Thus the method of anesthesia which is easy, safe, and infallible leaves nothing to be desired.

Hemostasis. In addition to the group of prostatectomy deaths due directly to hemorrhage, there is another larger group in which death later results indirectly from hemorrhage, by reason of infection secondary to lowered resistance. The importance of hemorrhage as a mortality factor is probably underestimated by reason of failure to recognize the primary cause of death in this second group of cases. The necessity for detailed attention to complete hemostasis, therefore, cannot be overemphasized, and for the same reason, haphazard hemostasis in prostatectomy will have its inevitable consequence in a certain percentage of cases. It is quite true that the majority of patients, properly prepared, will survive by the trust-to-luck method of hemostasis, but if the mini-

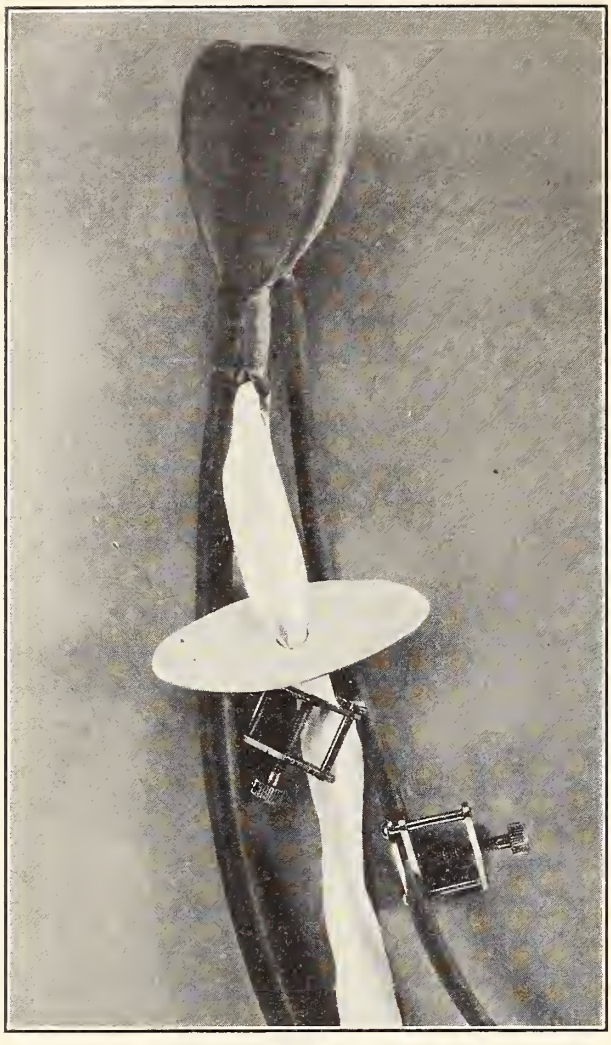


Figure 1. Davis Perineal Prostatectomy Bag.

mum mortality rate is to be achieved, this important item is not to be neglected.

Prostatectomy may ordinarily be accomplished with very little bleeding, and in many instances, the operation may be made almost bloodless, as the result of (1) the opportunity for deliberateness in controlling individual bleeding points in and around the prostatic capsule by suture and ligature, through the time afforded by the use of sacral anesthesia, and (2) the use of an inflated hemostatic bag for the purpose of controlling hemorrhage during the first few post-operative hours. For this latter purpose, in all the cases here reported, a perineal prostatic hemostatic bag, described in a previous publication,[4] was employed. This bag (see figure 1) is a distensible cone-shaped, balloon, which is introduced through the internal sphincter into the bladder immediately after the enucleation of the gland; and the apex of which is maintained in the prostatic urethra in such a manner as to snugly fill the prostatic cavity, and (which is more important) to retain, rather than evert, the torn edges of bladder mucosa. This bag differs from the Hagner suprapubic bag in two essential respects:

1. The perineal bag is maintained in place by means of direct traction via the perineal incision (and counter-traction against the perineum), rather than by indirect traction via the urethra.

2. In the absence of a suprapubic fistula, adequate provision for urinary drainage is accomplished by means of a large, through-and-through, stiff-walled, rubber tube, traversing the bag from apex to base, without communicating with the interior.

The caliber of this through-and-through drainage tube (internal diameter) is ¼ inch. Communicating with the interior of the bag near its apex is a much smaller tube, through which the bag is distended. The traction loop of rubber, for maintaining the position of the bag, and later for facilitating removal, is attached to the large tube just at its junction with the apex. A tape passes through the traction loop, and through a hole in the center of an oval piece of metal, and traction is maintained by means of a screw-clamp, the oval metal having been placed flush with the skin surface immediately after closure of the incision. In place of the oval metal and screw-clamp, an ordinary hemostatic clamp (separated from the wound by a pad of gauze) may be substituted. The length of the bag (apex to base) is 6.5 cm., and its diameter at the base (when distended with 60 c. c. of water) is 4.5 cm.

The bag is introduced into the bladder through the prostatic cavity and the internal sphincter, immediately upon completion of the enucleation. After distension with air, traction upon the tape is immediately begun, which results in pulling the tissues surrounding the bladder neck down into the prostatic cavity, obliterating lax open spaces and compressing the torn edges of bladder mucosa. With rare exceptions, hemostasis is immediate, complete and permanent. The traction is relaxed after three hours, the air

released from the bag after twenty-four hours, and the collapsed bag is withdrawn through the perineal fistula after forty-eight hours. Immediately after the operation the urine is usually yellow in color, and is seldom more than pink-tinted. Upon the rare occasions that hemorrhage recurs, the bag may be re-distended with air, the traction renewed, and the clots aspirated through the large, stiff-walled tube. A very efficient method of hemorrhage control during the first forty-eight post-operative hours is thus provided.

It may, therefore, be stated without exaggeration that, with proper attention to preparation, anesthesia, and hemostasis, the problem of the immediate mortality of prostatectomy may be considered to be satisfactorily solved, with one reservation only. I refer to delayed hemorrhage. As may be noted in table 1, this complication has occurred in 8 cases out of 323. Sudden, profuse hemorrhage, occurring as late as the tenth post-operative day, and interrupting an otherwise smooth convalescence, is a menace which may be neither foreseen nor prevented, and which occurs probably as the result of infection and slough. This constitutes a grave emergency, in that its seriousness may not be recognized until the patient has gone into collapse. Hemorrhage of this character is a complication which should not be temporized with, and which calls for immediate re-introduction of a bag or pack. In four of the above cases, an immediate suprapublic incision was made under local anesthesia in order to permit evacuation of clots and the introduction of a Hagner bag. Hemorrhage of this character was indirectly responsible for one of the eight deaths in that the patient's resistance was lowered by loss of blood to such an extent that gangrenous infection of the incision set in, resulting in general sepsis and death ten days later. In this connection, it is of particular interest to note that one patient had two of these massive, exsanguinating delayed hemorrhages, occurring on the tenth and the thirty-sixth post-operative days, respectively. The first was controlled by a re-introduction of the bag through the perineal fistula, and the second by open suprapubic incision under local anesthesia. This patient survived. The amazing interval of time (thirty-six days) between the prostatectomy and the second massive hemorrhage is worthy of note, and serves to remind us that the delayed hemorrhage menace is ever present, although sufficiently rare to be conspicuous only in the large series of cases.

Summary

The immediate operative results are shown in table 1. Although there were 121 consecutive cases without a death, there were eight deaths in the entire series of 323, a mortality rate of 2.48 per cent. This mortality rate represents a faithful and accurate recording of all deaths, due directly or indirectly to the prostatectomy, or occurring from any cause whatever during the patient's stay in the hospital. Among the eight deaths there has been included one which occurred on the thirty-ninth post-operative day. This patient was a very weak and frail old man of seventy-nine, who did well for the first three post-operative weeks, but who finally passed out from no apparent cause, other than lack of vitality and resistance. As an evidence of this he developed an abscess in the calf of the leg a few days prior to death. Since the site of the operation was in good condition, and since a period of thirty-nine days had elapsed, this was clearly not a prostatectomy death, yet this case has been nevertheless included. Of the seven other deaths, two were due to late general sepsis, three to renal insufficiency, one to pulmonary embolus, and the other to acute cardiac decompensation, occurring on the sixth post-operative day. One additional death, occurring on the fifty-first post-operative day (from renal insufficiency), I have considered could be honestly and properly excluded from the series, since this patient was up and fully dressed at the end of the third week and had been given permission to return home. Although the incision was entirely healed and although the urine was passing normally per urethra, this patient voluntarily chose to remain in the hospital awaiting the development of better urinary control.

The average age figure (70 years) is undoubtedly fairly accurate, although not representative of the entire series, in that this figure was compiled from 100 consecutive cases only. There were twenty-one patients above eighty years of age in the entire series.

With respect to the dependability of sacral block anesthesia, it is to be particularly noted that the necessity for additional gas inhalation anesthesia has arisen in not a single instance in the last 172 consecutive cases. As pointed out above, however, sacral anesthesia failures were much more frequent earlier in the series.

The one case of rectal injury at operation did not result in the development of an urethro-rectal fistula because the urinary stream was diverted during convalescence by suprapubic aspiration, and because the location of the lesion was very low down upon the anterior rectal wall, just above the sphincter ani. This was due to an avoidable technical error at operation.

The subject of delayed hemorrhage, occurring about the tenth post-operative day (eight cases) has been discussed above.

There were thirty-seven cases of post-operative epididymitis, occurring during the first six weeks. This figure is too high, since epididymitis, occurring toward the end of a long period of hospitalization, when the patient's morale has all but been exhausted, is a very trying and discouraging complication. For this reason I have since adopted preliminary bilateral vasectomy as a routine prophylactic measure, and shall subsequently publish comparative figures.

Late functional results

Table 2 summarizes the late functional results as determined by questionnaire blanks returned from 200 consecutive patients. This data was compiled during May, 1928, and June, 1930. On account of the recognized impossibility of communicating with all of a consecutive hundred of these patients, 250 questionnaire blanks were sent out to as many consecutive patients. From the replies, those of the last consecutive 200 patients operated upon were selected. In order to avoid complications and misunderstandings, only the following simple, direct questions were asked:

1. Is the wound entirely healed.
2. Can you control the urine?
3. Do you pass urine too often?
4. How many times do you get up at night to urinate?
5. Does the urine pass without difficulty?
6. As far as the operation is concerned, do you consider yourself (1) well, (2) improved, or (3) unimproved?

The last question was considered to be the most important, since this was for the purpose of obtaining a voluntary expression of the patient's own opinion as to the result of the operation. As shown in table 2, 164 of these patients unequivocally state that they consider themselves well, while there are thirty-two improved and four unimproved. An analysis of this data shows that of those patients who list themselves in the improved group rather than in the well group, practically every one has done so on account of urinary frequency, or on account of some other wholly unrelated cause for which the prostatectomy cannot under any possibility be considered responsible. Such patients, however, have nevertheless been classified according to their whims rather than in accordance with the known facts, since this table is intended to represent the patient's own unbiased opinion. In this connection it is to be noted that in a post-prostatectomy series, there would necessarily be a fair percentage of cases of advanced pyelonephritis and other chronic infections such as to prevent all possibility of the return of the urinary tract to normal. Therefore, even after the obstructive symptoms have been done away with by prostatectomy, the persistence of urinary frequency in a certain percentage of cases is inevitable. The average intelligent patient, however, recognizes that relief from obstructive symptoms is more essential than relief from minor degrees of urinary frequency. This is demonstrated by table 2. Although only approximately 60 per cent of these patients report themselves as being disturbed as few times each night as once or twice (or not at all),

as many as 80 per cent voluntarily express themselves as being well.

The question of post-prostatectomy incontinence is a subject deserving careful consideration. Although there was no case of complete incontinence in this series of 200, there were two with a sufficient degree of incontinence to be a cause of considerable inconvenience. While each of these patients has intervals of complete dryness and has the ability to start and stop the urinary stream at will several times while voiding, there is a weakness of the external sphincter, as indicated by leakage, at intervals, of small amounts on any undue exertion, such as coughing or sneezing or suddenly rising. Since these patients have intervals of complete dryness, and since they have the ability voluntarily to start and stop the urinary stream, it is evident that a sphincteric structure exists and it is, therefore, logical to consider the possibility of individual anatomic variation in the musculature or innervation of the external sphincter. I have under observation at the present time a patient with this identical type of sphincter weakness following suprapubic prostatectomy. In this connection, I do not intend to minimize the possibility of external sphincter injury by the perineal operation. It is to be frankly stated that this is a very real danger, particularly in those cases in which the internal sphincter has been rendered functionless by the gland itself. In addition to these two, there were three others with slight degrees of incontinence.

It is likely that in at least some of these five cases, the unsatisfactory control resulted from technical error at operation.

One case of complete urinary fistula resulted from the formation of a fibrous stricture or septum at the apex of the prostate. Since this condition has subsequently been restored to normal by internal urethrotomy, this fistula no longer exists The six patients with slight perineal urinary leakage each complained of the escape of a few drops of urine at intervals through the perineum at the time of voiding. In each case, this condition existed over a period of several months. Four of these have been subsequently cured by a secondary minor plastic operation. Another has been lost sight of. The sixth has a persistent perineal fistula in spite of a secondary attempt at plastic repair. Failure to obtain satisfactory healing in this case, however, may be explained by the fact that this patient shows a four-plus Wassermann test.

There has been no case of immediate post-operative urethro-rectal fistula. One patient, in a very debilitated and weakened condition, had a long, protracted convalescence associated with perineal pain and an elevated temperature over a period of three or four weeks. Five weeks after operation he developed a leakage of urine into the rectum, this fistula having occurred presumably as the result of a periprostatic abscess. Another developed an urethro-rectal fistula upon the tenth post-operative day, occurring presumably as the result of technical error at operation, although there was no evidence of rectal injury at the time. This fistula subsequently was successfully repaired by the Young-Stone operation.

The one patient having post-prostatectomy retention of urine was found at autopsy to have an unsuspected vesical carcinoma, situated in the region of the prostatic orifice.

Again referring to the mortality rate (2.48 per cent) in this series of patients averaging 70 years of age, it is of interest to compare this figure with those of the American Experience Tables of Mortality, which are used as a legal standard for actuarial computations by life insurance companies. According to this table, of 1,000 individuals living at the age of 70, slightly more than 6 per cent are expected to die from natural causes (that is, without any operation) before reaching the age of 71. Therefore, since the total of eight deaths in this series includes deaths from all causes, it is logical to conclude that this mortality rate of 2.48 per cent could be adjusted considerably lower, if it were possible to distinguish between deaths due to prostatectomy and deaths due to natural causes. This is rather a theoretical consideration, but serves to further emphasize the above statement that recent developments in prostatic

surgery have served to reduce the mortality rate to almost nil.

Conclusions

1. Present day methods (preliminary preparation, sacral anesthesia and hemostasis) are such that prostatectomy has come to be a benign procedure with a negligible mortality rate (2.48 per cent in 323 cases).

2. Assuming proper attention to the above details, the chief hazard of prostatectomy is that of sudden, profuse and exsanguinating secondary hemorrhage occurring as late as the tenth post-operative day. This hemorrhage should be treated as an emergency measure and should be checked by mechanical means even though a secondary operation may be necessary. Under these circumstances, it is an error to wait and hope that this hemorrhage will cease.

3. As far as the late functional results are concerned, it is conservative to expect 82 per cent of "well" patients and 98 per cent well or improved.

4. Urinary frequency, persistent to a greater or lesser degree following prostatectomy, even though the cause of mechanical obstruction has been removed, is the chief reason why 16 per cent of these patients consider themselves merely "improved" rather than well.

5. With respect to late functional results, the chief hazards of the perineal operation are those of injury to the external bladder sphincter and to the rectal wall. It seems conservative to consider that these hazards are more than compensated for by the lower mortality rate following the perineal operation.

TABLE 1

Perineal prostatectomy under sacral anesthesia: Immediate results

Total consecutive cases		323
Average age		70
Above eighty		21
Deaths		8
Mortality rate	Per cent	2.48
Total consecutive cases with no deaths		121
Sacral anesthesia. (Consecutive cases without failure)		172
Rectal injury		1
Post-operative "shock"		0
Delayed hemorrhage (several days)		8
Epididymitis		37

TABLE 2

Perineal prostatectomy under sacral anesthesia: late functional results

Total consecutive cases questioned	200
Time elapsed since operation	3 to 24 months
Patient's own opinion:	
Well	164
Improved	32
Unimproved	4
Incontinence:	
Complete	0
Inconvenient	2
Slight	3
Nocturia:	
Not at all or once	43
Once or twice	21
Two or three times	25
Four or more	11
Urinary fistula:	
Complete	0
Slight	6
Recto-urethral fistula:	
Immediate	0
Late	2
Retention of urine	1

REFERENCES

[1]Davis, Edwin: Perineal Prostatectomy Under Sacral Anesthesia; One Hundred and Seventy-six Consecutive Cases. J. A. M. A., 91:1618 (Nov. 24), 1928.

[2]Davis, Edwin: Perineal Prostatectomy Under Sacral Anesthesia. Nebraska State Med. Jour., 10:8 (January), 1925.

[3]Davis, Edwin: Perineal Prostatectomy, With Particular Reference to Sacral Anesthesia and to Hemostasis. J. A. M. A., 83:1988 (December 20), 1924.

[4]Davis, Edwin: Distensible Bag for Hemostasis and Drainage Following Perineal Prostatectomy. Jour. Urol., 18:201 (August), 1927.

[5]Davis, Ewin: The Young-Stone Operation for Urethro-Rectal Fistula. Surgery, Gynecology, and Obstetrics, 32:225 (March), 1921.

The wages of ignorance

Publication number six of the Committee on the Costs of Medical Care deals with the medical facilities of Shelby County, Indiana: a "typical" rural community. In brief the facilities are found to be adequate enough: there are hospital beds for all who need them, general practitioners and specialists are within easy reach, none need go without help because of financial need. The depressing side of the report is that which relates how these facilities are used. In a country which can be well served by its thirty-one medical men there are found five chiropractors and six practitioners of Christian Science. Of the half million dollars spent each year for the relief of sickness less than one-third is spent on skilled medical advice; only 1.3 per cent is spent on public health. If a few thousand dollars were spent on popular health education, what an investment it should prove!

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EDITORIAL NOTES AND COMMENT

THE DIAGNOSIS OF TUBERCULOSIS BY CULTURE

Perfection, the ambition of progressive men, will always demand a variegated approach to the problems confronting mankind. Thus empiricism may always fill a place for obtaining some information during progress even though the knowledge thus acquired is disproven many times by well planned scientific investigations. Opinions may differ but facts rarely change although their interpretation may readily prove variegated. This unfortunately leaves accurate decisions only for a few who must weigh the methods and results and then can predict the outcome which time alone will yield because these few are rarely given serious attention in the rush of humanity. It is obvious that for practical men there must be supplied methods which are simple, rapid and accurate. A definite diagnosis in tuberculosis carries a heavy responsibility and an ever present interest because of the universal nature of this disease. Hence the repeated appearance of new methods to certify diagnosis in this disease. The student confronted with the problem of tuberculosis, an everyday occurrence, finds a new staining method, a new method of animal inoculation or a new culture method appearing each month so that their number is legion and yet the majority pass from notice about as rapidly as they appeared, partly because their test was inadequate and crude.

Among the newer fields of progress in practice is the endeavor to replace the guinea pig in tuberculosis by means of the culture. There are two important requirements to be met. One concerns the efficient destruction of the undesirable contaminators and nonpathogenic acid-fast bacilli without injury to the tubercle bacilli, a requirement which the guinea pig so ably fulfilled, and the second concerns the ability to support the growth and development of small numbers of tubercle bacilli. The most frequent source of error of the advocates of new animal or culture methods for diagnosis has been due to their inability to realize that pathologic specimens could not be depended upon as test materials because of their irregular nature even in the same specimen and because the presence of uncertain detrimental influences capable of acting upon the tubercle bacilli contained therein would vitiate the findings. Such empirical tests must needs be part of a final practical proving, but only after the reagents and nutrients have been tested with pure suspensions of tubercle bacilli and especially on small numbers of bacilli which obviously are important in these delicate tests since the microscope full well suffices to discern large numbers in a specimen.

A typical confusing report which had better have been left unwritten appears in a recent number of Surgery, Gynecology and Obstetrics.[1] The authors empirically tested urines for tubercle bacilli and advocate methods which show a decided lack even of

[1]von Huth, Theodore, and Liberthal, Frederick: The Culture of Tubercle Bacilli from the Urine, Surgery, Gynecology and Obstetrics, 50:985 (June), 1930.

text-book knowledge, not to mention knowledge of current literature, concerning the commonplace facts regarding tubercle bacilli in cultures. They even maintain at this late date of extensive bacteriologic training in medical schools that human and bovine tubercle bacilli can be differentiated in culture by their color and, not to mention all the flaws, the outline of their technique of culture is decidedly inadequate. The latter point, however, is fortunate since it will spare unnecessary effort on the part of those who, encouraged by the enthusiastic report, might otherwise have been tempted to try this technique in practice. May we excuse the mistakes of these authors as being due to the spirit of an exuberant enthusiasm for a new step in the progress of the diagnosis of tuberculosis which is now being so generally appreciated and which will naturally call forth a flood of hastily performed empiric tests and hastily prepared publications. The conclusions will all agree in that the culture method offers opportunities never attained by the animal test for this disease. H. J. C.

STATISTICAL METHOD IN MEDICINE

What is the statistical method? A little logic, a smattering of mathematics, a few hints left for us by others who have also made mistakes and the statistician is already begun. It would require no more than fifty or sixty hours in a medical curriculum to fit our future doctors with the essential elements of this science. But this is not done. Medicine at large and medical literature in particular are immensely the losers by this neglect.

Test yourself, doctor, at this point, by turning to pages 340 and 323 respectively. Do these articles meet with sales resistance? In spite of their obvious merits, it is our judgment that they should.

We suspect that a statistician would find Dr. Minnig's confidence in his "statistical unprejudiced figures" a trifle naive. He might ask "Has any account been taken of age and sex composition of the population?" or "In what way were those 'averages' calculated?" or "What exactly is meant by 'disease developed in Colorado'?" It is, of course, entirely possible that the writer has more evidence to support his conclusions than has been offered in this article, but on the other hand readers who are properly sceptical will withhold their judgment until fuller proof is forthcoming.

Dr. Watson compares a newborn death rate of 16 per cent in a "hospital in which practically all the obstetrics is done by the general practitioner" with a rate of 3.7 per cent in a "hospital in which practically all the work is done by specialists". And he draws the conclusion that the "difference between the unskilled and the skilled is . . . . the difference of four infant deaths to one." This conclusion is quite unjustified. Dr. Watson kindly supplied us with the number of cases on which these percentages were based. It has thus been possible to calculate the probable errors of his percentages. They are 2.16 and 5.82 respectively. This means that when the laws of chance variation are taken into account it is exactly an even chance that the true percentages lie somewhere between 18.16 and 13.84 and between 9.52 and zero (since a negative rate is absurd). The difference between his percentages is 12.3 and the probable error of this difference (the square root of the sum of the squares of the two probable errors given above) is 2.84. The difference is thus more than four times the probable error of difference. We may, then, say with confidence that this difference between the two percentages is mathematically significant. The odds against such a difference arising by the operation of chance alone are in the neighborhood of 300 to one. But while the mathematical significance of the difference is thus established the medical significance is not. We cannot assume that the difference is due to difference in operative skill until we know that in all other respects conditions at the two hospitals are exactly alike. There may be differences in nursing care, in isolation technique, in cleanliness or in other respects that are

wholly or partially responsible for the observed significant difference in rates.

Dr. Watson has at least one other sentence which should make the statistician shudder. We leave our readers to find it for themselves.

We know that our authors will forgive us for this unsolicited criticism. Their papers are not exceptional in offering an opportunity for such. Medical literature is full of quantitative comparisons that will not bear analysis and it will continue so to be until statistical method is taught to medical students. That time is bound to come.

TRIBROMETHANOL ANESTHESIA

For three years the European and especially the German literature has been concerned with a new anesthetic, chemically tribromethyl alcohol, which goes by the trade name of avertin. The American Journal of Surgery introduces this drug in a series of articles[1] to American readers. In the last three years this drug has been administered to more than 250,000 individuals so that some clinical experience can be claimed in its support. The studies now reported by Drs. Bruger, Bourne and Dreyer from the Department of Pharmacology of McGill University show that it has little action on liver function, comparing favorably in this respect with amytal and ether. Kidney depression found in the dog was much less marked in man—a difference probably of the dosage employed. With respiratory depression there is an increase in blood bicarbonate. An increase was noted in the pH concentration of the blood which the authors attribute partly to anoxemia and partly to a disturbance of the phosphoric-lactic acid metabolism.

Although the Council on Pharmacy and Chemistry of the American Medical Association has not yet reported on avertin, it has been investigated by the British Medical Research Council and by a group of observers chosen from the Anesthetics Committee of the Royal Society of Medicine. The conclusion of this report, based on 198 cases, was favorable. Lundy and Osterberg[2] of the Mayo clinic, in reviewing the literature remarked that "there can be little doubt in the mind of one who has had much experience with the derivatives of barbituric acid, that they should be used in hypnotic doses rather than in anesthetic doses . . . any derivative of barbituric acid may produce any or all of the untoward results that have been attributed to any one of them."

CASE REPORTS

With this number Colorado Medicine opens a department of Case Reports. We have no guarantee that it will be a regular or permanent feature of this journal—that must depend upon the wishes and the goodwill of our readers—but we sincerely hope that it may meet with favor. Case reports, such as we herewith present, are amongst the most interesting and certainly the most valuable of original communications to medical literature. They are sure to be widely read. On occasion they should give rise to questions and even to controversy. Our correspondence columns are always open to our readers for this purpose. Will intending contributors please study these samples as a model for style? A case report deserves to be typewritten in regular double-spaced lines and without contractions or cabalistics. It is not necessary to omit verbs or articles: the editors will be glad to exercise their ordinary executive duties. Please patronize this department both in supply and demand.

[1]Guttman, Joseph R.: Rectal Anesthesia with Tribromethylalcohol, Am. J. Surg. N. S. 9:71 (July), 1930.

Speidel, Francis G.: Avertin Basal Anesthesia Ibid N. S. 9:73 (July), 1930.

Reed, Charles B.: Avertin Anesthesia in Obstetrics, Ibid N. S. 9:77 (July), 1930.

Lederer, Francis L.: Tribromethyl Alcohol in Otolaryngology, Ibid N. S. 9:78 (July), 1930.

Bruger, M., Bourne, Wesley, and Dryer, N. B.: Effects of Avertin on Liver Function, the Rate of Secretion and Composition of the Urine, the Reaction, Alkali Reserve and Concentration of the Blood and the Body Temperature, Ibid N. S., 9:82 (July), 1930.

[2]Lundy, John S., and Osterberg, Arnold E.: Review of the Literature on the Derivatives of Barbituric Acid. Proc. Staff Meetings Mayo Clinic, 4:386 (Dec. 18), 1929.

It is significant that the toxic effects are limited to the larger doses. This must give weight to the recommendations of several writers that this anesthetic is particularly suited for basal anesthesia and for promoting a slight degree of anesthesia as is sometimes desirable in labor. For the latter purpose it is commended by Reed[1] with an experience of ten cases and by Connell[3] with an experience of something more than fifty. Dr. Connell stresses the fact that in his hands avertin has not given painless labor. "But," he adds, "with avertin it is possible to make things so easy for the patient that she has no devastating pain, no prolonged backache, no exhaustion, and no memory of a terrible experience to jaundice her outlook on life." The uterus is rather less firmly contracted at the end of the third stage of labor than is usual in primiperae and the loss is slightly greater. Dr. Connell has never had any anxiety on these grounds and feels that the gain in freedom from exhaustion more than compensates for the slight loss of uterine tone from the anesthetic. These results were attained with dosage of 0.075 c. c. of fluid avertin per kilo. of body weight. This dosage appears to be reasonably safe and may be used as a basis for inhalation anesthesia in cases where anxiety is prominent as in operation for Graves' disease. The technique for the rectal administration of avertin is fully described in the papers of Guttman and of Lederer.[1]

OUR DISTINGUISHED VISITOR

It gives us great pleasure to learn, just as we are going to press, that the Sixtieth Annual Session of the Colorado State Medical Society is to be honored with the presence of the president of the American Medical Association. Dr. William Gerry Morgan has practiced medicine in the city of Washington for thirty years. He has been president of the American Gastro-Enterological Association and of the Clinico-Pathological Society. Dr. Morgan will be the chief speaker at our banquet on September 10.

[3]Connell, J. S. M.: The Use of Avertin in Childbirth, ancet 2:184 (July 26), 1930.

AN INVITATION FROM DR. BLOODGOOD

To the Editor of Colorado Medicine.
Dear Sir:

If you receive this in time and it is appropriate, will you publish in your journal that there will be a meeting in the ballroow of the Belvedere Hotel in Baltimore, Maryland, Monday, Tuesday and Wednesday, September 15, 16 and 17, 1930, beginning Monday morning at 10 o'clock, and ending Wednesday evening at 9 o'clock, daylight saving time. During these days there will be lantern-slide demonstrations, with four lanterns and screens, on the Diagnosis and Treatment of Diseases and Tumors of Bone.

The first day will be devoted to the fundamental and essential knowledge of the benign and malignant lesions of bone, such as osteitis fibrosa, giant-cell tumors, osteomyelitis, sarcoma and so forth. On the second day, the subject will be the different diseases of single bones, such as the lower end of the radius, vertebrae, etc. The third day will be reserved for the presentation of rare lesions of bone difficult to diagnose. Any member of the medical profession attending this meeting may register such a case by addressing Miss Maude Walker, Secretary to Dr. Bloodgood, Surgical Pathological Laboratory, Johns Hopkins Hospital, Baltimore, Md., enclosing the x-ray films or lantern slides of them (if possible the latter) and sections of tissue, if any.

On account of the size of the ballroom the number must be limited to 800.

Those who wish to attend should write the Belvedere Hotel and register, either requesting the usual rates for a single or double room with and without bath, or the special rates for three or more in a room with and without bath, and the special restaurant rates for a club breakfast, luncheon and dinner. You are advised to bring the answer received from the manager of the Belvedere Hotel with you and present it when you register. For any further details in regard to this demonstration, address your letter to Miss Maude Walker, named above.

I am very anxious that this invitation should reach radiologists, surgeons, pathologists, and internists who are interested in the subject but have only rare opportunities to observe lesions of bone. In three sessions of two or two and one-half hours each, on three days, with four lanterns and a very remarkable and educational motion picture, the subject can be presented in an almost unforgettable way, emphasizing the essentials and fundamentals in the diagnosis and treatment of bone lesions. All cases registered for presentation on Wednesday will be sent later to Dr. Bowman C. Crowell, Director of Clinical Research of the American College of Surgeons, who is chairman of the Bone Sarcoma Committee.

It is impossible except in the largest clinics, for any radiologist, pathologist, surgeon, or internist, to become familiar with the changing clinical, x-ray and microscopic pictures of diseases and tumors of bone as they come under observation earlier and earlier after the first injury or first symptom, and to learn how to diagnose and treat them in the best way.

Sincerely yours,
JOSEPH C. BLOODGOOD,
Garvan Cancer Research Laboratory of the Surgical Pathological Laboratory of the Johns Hopkins University, Johns Hopkins Hospital, Baltimore, Maryland.
July 20, 1930.

INTRACRANIAL INJURY OF THE NEWBORN*

E. SHELDON WATSON, M.D.
LUSK, WYOMING

A consideration of the causes of fetal injury and death is of timely importance to physicians of Denver and Colorado. Recently a Denver newspaper published a news item of which we as physicians can be none too proud; namely, that Denver's infant mortality rate for 1928 was 9.1 per cent, and that this rate has not been lowered in thirteen years. The infant mortality rate throughout the birth registration area of the United States is 6.8 per cent.

In preparation for this article a study was made of the fetal mortality in six of the larger Denver hospitals. The obstetrical records of three of these hospitals were reviewed for the year 1928, of two for 1929, and of one for 1927, 1928, and 1929. The span of the study included infants born from the sixth month of gestation on and until the tenth day of life. It was not possible in every case to secure all the data desired. For example, out of one group of 170 charts it was possible to ascertain whether or not pituitrin was used in only 47 cases.

Out of a total of 2,563 births there were 170 deaths, a mortality rate of 6.6 per cent. Of these babies 57 per cent were born at term, 43 per cent before term. The highest death rate was 16 per cent, for a hospital in which practically all the obstetrics is done by the general practitioner. The lowest rate was 3.7 per cent, for a hospital in which practically all the work is done by specialists. Other rates were 4.4 per cent, 6.2 per cent, 6.7 per cent, 7.7 per cent, 9.8 per cent, and 11.2 per cent. In many cases no diagnosis of the cause of death was recorded. The only diagnoses which were considered reliable were those based upon a complete post-mortem examination. Only six complete autopsies were recorded and the diagnosis in all of these was intracranial injury of the newborn. The diagnosis most frequently made was "prematurity", but of course prematurity is often only a contributing factor to the actual cause of death. The next most frequent diagnosis was "asphyxia neonatorum," which is more frequently a symptom than a cause of death. "The postnatal diagnosis," says Adair,[1] "has too long been obscured by a blanket diagnosis of asphyxia neonatorum. Asphyxia is usually a symptom of cerebral injury." And according to Pierson,[2] "the diagnosis of death from asphyxia is justifiable only when there is strong clinical evidence of asphyxia, but none of injury; and when complete autopsy reveals characteristic signs of asphyxia, but none of injury."

Johnson,[3] and Holland[4] in his classical monograph on intracranial injuries, both make the statement that intracranial injury is probably the most common cause of fetal death; and Ehrenfest[15] states that 70 to 80 per cent of deaths of th enewborn are due to intracranial birth injury.

Definition

Intracranial injury of the newborn may be defined as the trauma, sufficient to produce death or serious injury, inflicted upon the brain of the fetus, resulting from undue cranial stress as the head passes through the birth canal.

Pathology

An excellent description of the pathology of intracranial injuries by Dr. Wm. C. Johnson, pathologist of the University of Colorado School of Medicine, appeared in the March, 1928, issue of Colorado Medicine. His report was based upon 1,000 autopsies of the newborn. The skull in these cases was opened by the Beneke[5] method, cutting through the calvarium about one inch on either side of and parallel to the sagittal suture. Cutting downward through the fronto-parietal and paricto-occipital sutures, the bony flaps so made may be turned aside. The cerebral hemispheres are then removed, leaving the falx cerebri and the tentorium cerebelli exposed and intact. Autopsies on the newborn should always be done by this method.

*Read before the Medical Society of the City and County of Denver, February 4, 1930; before the Boulder County Medical Society, February 13, 1930.

It often happens that a tear in the tentorium or falx is the only gross evidence of serious intracranial injury. (The mortician, by suturing the flaps, can easily restore the natural appearance of the head.)

According to Holland[4] the tentorium and the falx act as stays (which may be likened to the wire stays in the automobile wheel) that serve to maintain the contour of the calvarium as the head passes through the birth canal. If there is undue cranial stress these membranes tear. Either the falx or the tentorium, or both, may tear, the usual site of laceration being the middle of the lateral half of the tentorium. When once these "stays" have given way, dangerous pressure upon the brain is sure to result. Death in such cases may result from direct pressure upon the brain, or as a result of indirect pressure from hemorrhage. In the majority of cases of tears of the meningeal septa intracranial hemorrhage occurs. This bleeding usually originates from the vein of Galen or its tributaries which drain the important structures of the midbrain, the cerebellum, and the choroid plexuses. The hemorrhage may be sub-dural, sub-pial, within Sub-tentorial hemorrhage, producing medullary compression, is the most certainly fatal.

Pressure thus produced may cause speedy the brain substance, or intra-ventricular. death by depression of the respiratory and cardiac centers or it may leave residual paralyses. No exhaustive work has been done upon the residual lesions of cerebral injuries which persist throughout life as physical and mental stigmata. It is certain, however, that a large number of the birth injured live to be a burden upon society and a study for the pediatrician, the orthopedist, the neurologist, the psychiatrist, and the criminologist.

According to Crothers,[6] "A considerable proportion of all the defective and crippled children who fill institutions and form a discouraging group in every out-patient department, owe their disabilities to accidents during birth."

Graves Smith[7] in a study of the mentality of 50 adolescent children with definite histories of birth injury found 20 in the imbecile group and 10 in the idiot group. Schroeder,[8] analyzing the records of the Institute for Juvenile Research in Chicago, found, among 5,000 consecutive cases, 225 children with definite history of having had brain or spinal cord birth injuries. The mental age of this birth-injured group averaged three to five years below the level of the average clinic child; 50 per cent were delinquents, 25 per cent were underdeveloped, 25 per cent were mutes; in four there was hearing defect, and nine had "idiopathic" epilepsy.

Johnson[3] pointed out that often, instead of rupture occurring in the course of the vein of Galen, this vein may become kinked resulting in stenosis or thrombosis. Beneke[5] suggests that hydrocephalus might result from stenosis or thrombosis of this vein. This suggestion fits in with the experimental observations of Dandy and Blackfan,[9] who were able to produce hydrocephalus by ligation, at certain points, of the vein of Galen. They were able also to produce it by placing an irritant ligature about the midbrain. As adhesions blocked the subarachnoid space around the midbrain, hydrocephalus developed. Pathological studies in babies dying of hydrocephalus showed that adhesions in this region were frequently present. Dandy and Blackfan[9] believed these to be the result of meningeal infection. It is possible that some of them were the result of organized blood from tentorial lacerations. (Crothers.[6])

Diagnosis

At birth, or shortly after, the diagnosis of intracranial injury offers little difficulty.

History: There is usually a history of either difficult labor or labor which has been excessively shortened by artificial intervention. Spontaneous precipitate labor may indicate that the head of the fetus has undergone severe trauma in a short time with no chance for gradual moulding as nature intends. A history of prolonged labor is also significant. The matter of the methods of resuscitation, whether gentle or rough, should be considered. Intracranial injury may be found, however, in labors that are apparently normal, in which there has been no undue trauma, and even following

Caesarian section before the mother has had a trial at labor.

Asphyxia pallida is usually present and is usually associated with general relaxation of the musculature.

Excessive moulding of the head is usually in evidence with considerable over-riding of the bones.

A feeble plaintive cry heard with each expiration is fairly characteristic.

Respirations are frequently slow and irregular. Often there is a deep inspiration followed by slow expiration and a period of apnea. The heart rate is usually slowed, but may be increased.

Flaccid paralysis (later replaced by spastic paralysis) may be present.

Strabismus and nystagmus are frequently persistent and if persistent are pathognomonic.

Convulsions and muscular twitchings are pathognomonic and may develop after several hours or days.

The baby usually appears *alert* and *wakeful* at first, but later becomes stuporous.

A spinal fluid which is frankly bloody, obtained by cisternal or lumbar puncture, using a large caliber, blunt, intravenous needle, is conclusive evidence of intracranial hemorrhage. Puncture should be done early before a clot is formed. It must be remembered, however, that microscopic blood in the spinal fluid of the newborn is considered almost physiologic.

Prognosis

There are undoubtedly many cases of minor intracranial injury, even with hemorrhage, which make complete recovery. If the condition is fatal, death usually occurs as a result of medullary compression before the baby has breathed. Death usually occurs within a few hours or days and almost never after the tenth day. Many lesions which are not fatal produce a life-long defect from which there is almost no hope of recovery.

Preventive Treatment

Late treatment of intracranial injury lies in the province of other specialties than that of obstetrics. Ninety-nine per cent of the treatment is prevention and this is wholly the responsibility of the obstetrician. Dr. Abt[10] writes, "Pediatricians see the wreckage from birth injuries in its worst form and see it continue for a longer time than the obstetricians. The obstetricians have an opportunity and a responsibility to correct this great evil of the wreckage of babies which is so prevalent. It is a fact that a certain number of these injuries is unavoidable; it is a more important fact that a certain number of these injuries is avoidable . . . I shall have the courage to say that if there is better obstetrical technique there will be a great deal less of infantile cerebral palsy and meningeal hemorrhage."

Holland[4] offers the estimate that at least 30 per cent of the death toll due to intracranial birth injury is avoidable.

Better Training: The problem of prevention is primarily the problem of better obstetrical training in our medical schools. Fortunately, the time is approaching when more emphasis will be placed upon the didactic and especially the clinical teaching of obstetrics in our schools. At present it cannot be denied that poorer work is done in obstetrics than in any other branch of medicine. While most of the specialties are overcrowded there is a crying demand for more trained obstetricians. The difference between the unskilled and the skilled is the difference between infant mortality rates of 16 per cent and 3.6 per cent in two of our Denver Hospitals—the difference of four infant deaths to one. Even with the advance of obstetrical specialization which should and will come, the general practitioner must still do much of our obstetrics. We must then demand of the internist or the surgeon who does obstetrics that in this important field he display a skill which is commensurate with his skill in internal medicine or in surgery.

More careful prenatal examinations: In all texts on obstetrics the importance of taking the pelvic measurements of the expectant mother is emphasized. Yet, at least 80 per cent of the women entering the obstetrical department of one of our local hospitals have never had this done. It is not surprising, then, that so many infants die as the result of undue cranial stress when the physi-

cian has no idea of what disproportion may exist between the passage and the passenger in a particular case. Being fore-warned of the existence of a contracted pelvis, the physician will be prepared for the emergencies that may arise. For example, when the conjugata vera is 7.5 cm. or less he will be in readiness to do a caesarian section before the head of the fetus has been battered uselessly against the pelvic inlet and before the mother has become exhausted and probably infected. In case of a slightly contracted pelvis much may be done to prevent dystocia by dietary measures and the physician will appreciate the danger of any procedure which would increase the forces of labor. In all probability, had proper prenatal care been given in every case, our study of infant deaths in Denver would not have shown as high a rate as 43 per cent of premature labors. As Holland[4] pointed out, intracranial injury is much more common with premature than with full-term infants.

Less interference with the progress of labor: In the analysis of infant deaths in Denver hospitals it is significant that out of ninety-four cases of infant death there was some sort of interference with labor sixty-five times, or in 69 per cent of the cases. This interference was of an operative nature in forty-six of the cases. Version and extraction was the most common form of operative interference, being done in 21 per cent of the fatal cases, which indicates the danger of Potterism except in the hands of a skillful Potter.

The result of this interference is shown by the fact that in 43 out of 48 fatal cases the second stage of labor lasted an average of only 58 minutes, as against a 79 minute average in 50 control cases.* Thus it appears that, due to interference, the length of labor in the fatal cases was unduly shortened, thereby subjecting the head of the fetus to rapid moulding under great pressure instead of gradual moulding under moderate pressure.

Of course, a prolonged second stage demands interference inasmuch as severe cranial compression over a long period of time is as productive of injury as is very rapid compression. In the series of fatal cases, however, only 5 could be found in which the second stage lasted over 2 hours, and the average duration of the second stage in these cases was 6 hours and 50 minutes.

Judicious use of pituitrin: Pituitrin, by greatly increasing the vis-a-tergo of the uterine contractions, causes also an increased pressure upon the head of the fetus. Its indiscriminate use doubtless is responsible for many cases of intracranial injury.

Carl Davis,[11] speaking of pituitrin, says, "it is one of the most powerful and useful drugs in medicine, . . . yet large doses during labor have resulted in the death of many babies and a smaller number of women." Williams[12] considers that the use of pituitrin in the first stage of labor is reprehensible. "Its chief indications," he says, "are twofold; first, in multiparae suffering from uterine inertia, in whom labor has come to a stand-still with the head lying below the ischial spines; and second, in primiparae when the head has become arrested at the vaginal outlet and it seems that only a few strong expulsive efforts are needed for its extrusion. Pituitrin is absolutely contraindicated in the presence of mechanical disproportion or before the cervix has become fully dilated."

De Lee[13] emphasizes the fact that pituitrin "is a powerful oxytoxic and one of the most dangerous medicines we have, doing untold damage to mother and child." He agrees with Williams as to the indications for pituitrin except that when the head is arrested at the vaginal outlet it is safer for the child if episiotomy be done rather than resort to pituitrin. He considers 3 minims of pituitrin a safe maximum dose, but he warns that even with this dose there is danger of producing a "tempestuous uterine action."

Unfortunately these repeated warnings go unheeded by a great number of physicians. A physician whom I assisted recently ordered 0.5 c. c. of pituitrin in a labor which was proceeding with all normalcy, and he apologized for using such a small dose, saying he ordinarily gave 1.5 c. c. Another physi-

*A group of 50 cases in which the baby lived—analysed for comparison with the fatal cases.

cian was persuaded by his patient, who was only eight and one-half months pregnant and was desirous of taking a trip, to induce labor. He used pituitrin. Forceful pains ensued. A Bandl's contraction ring developed. In desperation he did a version and extraction and delivered a dead child with a fracture of the seventh cervical vertebra.

In the local series which was studied it was found that in 47 cases of infant death pituitrin was used in the second stage 30 times, or in 64 per cent of the cases. A control study of 50 normal cases showed that pituitrin was used only 13 times, or in 26 per cent of cases. In the group that died an average of 8.6 minims per labor was used; in the control group of babies that lived, an average of only 4.6 minims per labor was used. The average dose in the former group was 6.2 minims, as against only 3.8 minims in the control group. Pituitrin was used over twice as frequently in the group of infants that died and the average dose and the average per labor was nearly twice as large as in the control group.

Proper use of forceps: Although this is a common cause of intracranial injury space will not permit a detailed discussion of the subject here. It is significant, however, that in this series high forceps were used more commonly than mid-forceps or low forceps. High forceps were used in 10.6 per cent of 94 fatal cases, a rather high percentage for an operation which is considered almost obsolete. Doubtful indications for the use of forceps, misapplication of the blades, and the use of strong, non-intermittent traction, are undoubtedly responsible for many of the injuries incurred in this series.

Haste in breech extractions: Most of our texts teach that the obstetrician should strive, in breech extraction, to take eight minutes from navel to mouth. It seems, however, that a mania for speed all too often seizes the obstetrician when the umbilicus appears at the vulva, whence the mortality among breech deliveries is needlessly high.

Pierson[2] reports that the mortality among 5,000 primary breeches at Sloane's Hospital for Women was 8 per cent, and that the mortality in 87 cases of version and extraction was 26 per cent. The average time from navel to mouth in these series was only 4 minutes. The reason for this "mania for speed" is that the physician is taught that the breech baby will quickly become asphyxiated as a result of umbilical cord compression. According to Pierson,[2] however, asphyxia alone was the probable cause of death in only 5 per cent of his series of cases, while trauma alone was the probable cause of death in 56 per cent.

Holland,[4] in decrying such unnecessary haste, remarks that, "though some babies are killed by asphyxia, it seems a pity to kill them twice." Holland further contends that it is perfectly safe to take twenty minutes from navel to mouth.

Potter[14] writes, "I never hasten delivery after the umbilicus appears because experience has taught me that haste is unnecessary; that severe complications take place when we interfere with the natural forcing powers at this stage of delivery. Experience has taught me that nearly all babies start to breathe when let alone. I place no limit upon the time allowed to pass. I am governed entirely by the condition of the mother and child."

Delay in rupturing the membranes: The intact bag of waters forms a hydrostatic wedge within which the head is protected by a more or less even distribution of pressure. When the bag of waters is ruptured there is a sudden shifting of the points of pressure with a resultant intensifying of the pressure at certain points. Care should be taken to preserve the bag of waters as long as possible and usually it is not necessary to rupture it until it appears at the vulva.

Management of the head on the perineum: The last part of the birth canal is the part most quickly traversed. The head, therefore, at this point is subjected to severe pressure which is suddenly released. The head should be made to pass over the perineum very slowly and, preferably, when the part is relaxed by complete anesthesia. Many physicians are over-zealous in guarding against a perineal laceration, which they consider a disgrace, and to that end they may exert great counter-pressure upon the head.

Forcing the head back is a common fault of internes who feel that the baby must wait until the physician arrives.

It is certainly the part of conservatism, when there is a rigid perineum which is likely to tear, to do an episiotomy, thus saving the head of the fetus the great stress to which it would be subjected were it allowed to plow through a resistant perineum.

Delay in cutting the cord: Intracranial injury always produces shock. The best remedy for shock is blood transfusion. It has been shown that as much as 100 c. c. of placental blood may be lost to the baby by early tying of the cord. Therefore one should wait at least five minutes or until the cord has ceased to pulsate, before tying it.

Methods of resuscitation: It should be remembered that primary asphyxia is rare and that secondary asphyxia most commonly results from intracranial injury. Rough methods of resuscitation are not only of doubtful value, but are capable of greatly extending the amount of intracranial injury and hemorrhage. This is especially true of the vicious practice of suspending the baby by its heels and spanking it, which, in the unstable state of the infant's vasomotor system, causes a great flow of blood to the head. The only indication for thus inverting the baby is to allow mucus to drain from the upper respiratory tract. This can better be accomplished by aspiration with a tracheal catheter.

Artificial respiration by means of the tracheal catheter or mouth to mouth breathing is the best method of resuscitation. As Potter[14] says, however, most babies need only to be let alone and they will breathe.

Curative Treatment

Curative treatment of such an alarming condition as extensive intracranial injury is, of course, not very successful. However there are certain things which may be done.

Elevating the head: Instead of the customary nursery procedure of lowering the head of the crib of the newborn, it would seem wise to elevate the head in cases of intracranial injury in order to relieve the congestion of the cerebral vessels.

Blood infusions: 10 to 20 cc. of whole blood injected deep into the buttocks and hypodermoclyses of 20 to 30 c. c. of normal saline are of value in combating hemorrhage.

Cisternal drainages: In cases of hemorrhage in which blood is intermingled with cerebro-spinal fluid great relief may result from cisternal or lumbar drainage. It should be done early, before clotting occurs.

The author is indebted to the physician in charge of each of the following cases for permission to publish the following case reports:

ILLUSTRATIVE CASES

Case No. 1. Baby W. Mother 6½ months pregnant. The baby weighed 5 pounds the second of a pair of twins, the first of which weighed 4 pounds. The first twin presented by breech and was delivered gently and resuscitated gently by the interne. The time from navel to mouth was eight minutes. This baby is now six months old and well. The physician on the case arrived in time to deliver the second twin which presented by vertex. Although the pains were good, 3 minims of pituitrin was used. In resuscitation the baby was suspended by the heels and spanked. Asphyxia pallida and limpness were present. There was a plaintive cry with each expiration. Respiration was slow. Heart tones were normal. Oxygen was administered without benefit. Upon lumbar puncture, after 6 hours, 12 c. c. of bloody spinal fluid were withdrawn and the baby seemed better. After 12 hours the process was repeated and only 3 c. c. of almost pure blood could be withdrawn before clotting occurred. At 12½ hours the baby died. Autopsy revealed a large subdural hemorrhage over the left occipital lobe and a small tear in the left side of the tentorium. The thoracic and abdominal viscera appeared normal.

Case No. 2. Baby R. Mother at term. The pelvic measurements were never taken. This was a frank breech presentation with a difficult, rapid extraction with forceps on the aftercoming head. There was no attempt at resuscitation. Respiration started in ten minutes. A large amount of mucus was aspirated from the throat. Asphyxia pallida and limpness were present. Left facial paralysis appeared later. After 17 hours a 15 c. c. infusion of whole blood was given and the baby looked better. The temperature was 100°. The child nursed poorly and on the third day refused to nurse. Fifty c. c. of saline was given by hypodermoclysis. On the fourth day convulsions nystagmus and muscular twitchings appeared and were present until the baby died on the fifth day.

Autopsy revealed a very large subdural clot covering and compressing the entire left cerebral hemisphere. There was also an organized clot in the region of the vein of Galen. There was an incomplete tear of the left half of the tentorium. There was slight congestion in the base of one lung. Other organs were normal.

Case No. 3. Baby P. Mother full term, para 2. Although the first delivery was with high forceps and the baby died in convulsions, pelvic measurements had never been taken until the mother was admitted. External measurements then revealed a generally contracted pelvis. The mother was admitted in labor with a temperature of 99.4°. The family doctor at home with ungloved hands, had attempted high forceps and failed. He was discharged and an obstetrician called. Caesarian section was out of the question. The mother was exhausted and infected. The fetal heart tones were weak and slow. Delivery was performed with high forceps under spinal anesthesia. The baby was pale and limp and did not breathe. At autopsy 100 c. c. of subdural and subtentorial blood was found. There were extensive lacerations of the falx and tentorium.

The mother died four days later of streptococcic septicemia.

Case No. 4. Baby W. Mother, para 1, at term. This was a difficult labor with high forceps delivery. The baby was weak and pale, unable to cry and had difficulty in swallowing. Right facial paralysis appeared in twenty-four hours, also convulsions. With nasal feedings the baby gained weight and finally nursed. A complete left hemiplegia and left internal strabismus were present. The baby is now three and one-half years old. Speech acquirement was slow and walking did not begin until twenty-four months. The left leg is somewhat atrophied and there is a limp. The left arm is almost useless. There is an internal strabismus of the left eye. The child will always carry its physical defects and probably will be mentally retarded.

Case No. 5. Baby McC. Mother, primipara, at term. No pelvic measurements were taken prior to admittance although prenatal examinations were made. External measurements revealed a generally contracted pelvis with a Baudeloque of 18. There was marked dystocia and delivery by midforceps was effected.

Asphyxia pallida was present and the baby breathed feebly. One c. c. of alpha-lobelline improved its condition. There was a feeble, plaintive cry with each expiration and respiration was slow. Immediate cisternal puncture revealed increased pressure and 20 c. c. of blood-tinged cerebro-spinal fluid was easily withdrawn. Twelve c. c. of whole blood was given in the buttocks. The head was elevated. The diagnosis of intracranial injury with hemorrhage was made. On the second day the blood infusion was repeated and the baby was much improved; the color was normal, and it nursed. Respirations were normal. A right internal strabismus appeared. On the fourteenth day, the day of discharge, the strabismus had disappeared and the baby appeared perfectly normal, and had surpassed its birth weight by 3 ounces. The baby is now six and one-half months old and is perfectly well and normal.

Summary

1. Denver has a high fetal mortality. In six Denver hospitals there is an average mortality rate of 6.6 per cent for the first ten days of life. Throughout the country the rate is little lower than it was in the day of the midwife.

2. Intracranial injury is the most common cause of death among the newborn.

3. Injury may consist of cerebral compression directly, or indirectly from hemorrhage. It may produce early death or life-long physical and mental stigmata of many types.

4. Diagnosis is based on a history of hard labor, excessive moulding of the head, asphyxia pallida, plaintive cry, slowed respiration, flaccid paralyses, strabismus or nystagmus, convulsions or twitchings, and frank blood in the spinal fluid.

5. Death occurs early if at all. Some cases recover.

6. Treatment consists mostly of prevention. Especially to be considered in this regard are better obstetrical training, more thorough prenatal examinations, less interference with the progress of labor, more conservative use of pituitrin, proper use of forceps, less haste in breech extractions, preservation of the bag of waters, less resistance to the head on the perineum, delay in cutting the cord, and gentle methods of resuscitation. Curative treatment consists of elevating the head, blood infusions and hypodermoclyses, and cisternal drainage.

REFERENCES

[1]Adair, F.: Abstract of Discussion, J. A. M. A., 92: 224 (Jan. 19), 1929.

[2]Pierson, R. N.: Spinal and Cranial Injuries of the Baby in Breech Deliveries, Surg. Gyn. and Obst., 37: 802 (Dec.), 1923.

[3]Johnson, W. C.: Postmortem Studies of Intracranial, Spinal and Pulmonary Lesions in the Newborn and Stillborn, and Their Significance for the Obstetrician, Colo. Med., 25:78 (March), 1928.

[4]Holland, Eardley: Report on the Causation of Fetal Death, No. 7 of Ministry of Health Reports, London, 1922.

[5]Beneke: Munchen. Med. Wochenschr., 57: 2125, 1910.

[6]Crothers, B.: Mechanism of Labor from the Neurologic Point of View, J. A. M. A., 92:97 (Jan. 12), 1929. Also—Changes of Pressure Inside the Craniovertebral Cavity, Surg. Gyn., Obst 37:790 (Dec.), 1923.

[7]Smith, Graves: [Quoted by Schroeder (8)].

[8]Schroeder, P. L.: Behavior Difficulties in Children Associated with Birth Trauma, J. A. M. A., 92:100 (Jan. 12), 1929.

[9]Dandy, W. E., and Blackfan, K. D.: Internal Hydrocephalus. Am. J. Dis. Child., 8: 406 (Dec.), 1914; 14: 424 (Dec.), 1917.

Dandy, W. E.: Experimental Hydrocephalus, Ann. Surg., 70: 129 (Aug.), 1919.

[10]Abt, Isaac A.: Abstract of Discussion, J. A. M. A., 92:224 (Jan. 19), 1929.

[11]Davis, Carl H.: Obstetrics and Gynecology in General Practice, J. A. M. A., 93:961 (Sept. 28), 1929.

[12]Williams, J. Whitridge: Textbook of Obstetrics, 1926, page 760.

[13]De Lee, J. B.: Textbook of Obstetrics, 1924.

[14]Potter: Abstract of Discussion, J. A. M. A., 92:224 (Jan. 19), 1929.

[15]Ehrenfest, H.: Birth Injuries, J. A. M. A., 92:97 (Jan. 12), 1929.

See also:

Ford, F. R., Crothers, B., and Putman, M. C.: Birth Injuries of the Central Nervous System. Williams and Wilkins Company, Baltimore, 1927.

Piper, E. B., and Bachman, C.: The Prevention of Fetal Injuries in Breech Delivery. J. A. M. A., 92:217 (Jan. 19), 1929.

Porter, W. D.: Popular Fallacies Concerning Occipitoposterior Positions in Vertex. J. A. M. A., 92:221 (Jan. 19), 1929.

DIAGNOSIS AND MANAGEMENT OF CONTRACTED PELVIS*

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From a practical point of view it is sufficient to divide the contracted pelves into the following three groups: 1. Simple flat; 2, generally contracted; 3, distorted.

The generally contracted pelvis, in which the anterior posterior diameter is especially shortened is one of the most common type. The frequency of contracted pelves is variously stated. The usual figures are 3 to 4 per cent, and of these, 1 per cent give difficulties in labor. In the year 1928 there were 215 deliveries at the Colorado General Hospital, and the contracted pelves according to the definition given later were 5 per cent of which 1 per cent gave difficulties in labor.

In contracted pelvis, a reduction in the size of any part of the pelvis should be included but, for practical purposes, it is most important to consider the reduction of the diameters of the brim. Because if only the head passes the brim, any obstructions encountered at the outlet will in most cases, and only with rare exceptions, be overcome by ordinary measures without much risk to the mother or infant.

If the antero-posterior diameter only is shortened, it is a simple flat pelvis. The effect of the shortening is usually overcome. In the type of pelvis where all the diameters are shortened, and the conjugate more than the others, difficulty is encountered, and this type is the most common of all. The relative proportion of the conjugate to the transverse diameter varies from the simple flat to the generally contracted. In fact group two may be considered as covering all the contracted pelves, with the other merely types, in which one particular diameter is especially reduced.

Definition of Degree of Contraction

Clinically a contracted pelvis is hard to define, as not only the anatomical measurements must be taken into consideration, but also the measurements of the infant skull and the possibility of adaptation of the skull to the pelvis, also depending to a certain extent upon the position and presentation in labor.

Anatomically, contracted pelvis may be divided into degrees according to the length of the conjugate, and to the proportion of the conjugate to the transverse. For example, in a simple flat pelvis the conjugate may be shortened 2 to 3 cm., with as good a prognosis as 1 cm. shortening of the conjugate, if the transverse is also shortened in the same proportion. Ordinarily the brim of a normal pelvis has a conjugate of 10 to 11 cm. and 12.5 cm. for the transverse. A contracted pelvis may be divided into three degrees as follows: First degree—conjugate down to 9 cm.; transverse down to 10.5 cm.

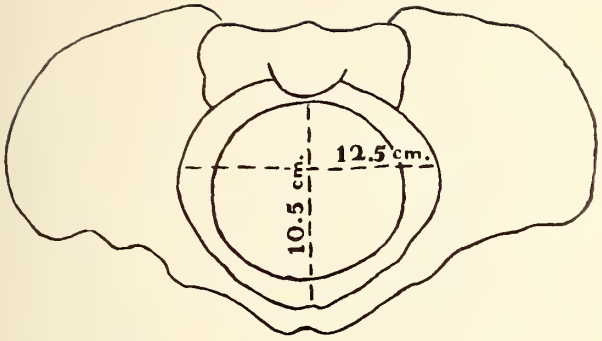
The prognosis here is good, because the conjugate is reduced only slightly below the bi-parietal diameter which is 9.25 cm.

Second degree—conjugate down to 8 cm.

The prognosis depends on the transverse diameter. If the transverse diameter is normal, the prognosis is good as the head moves sufficiently to one side of the pelvis to

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Normal

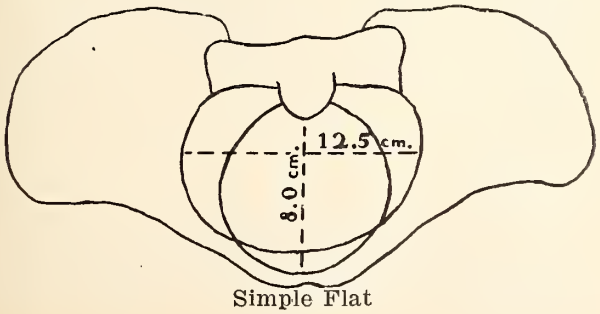
bring the bi-temporal diameter into the conjugate. As the transverse diameter becomes smaller and smaller with a conjugate of 8 cm., the prognosis becomes progressively worse, until the transverse being at 10.75 cm. there is no lateral play for the head, the biparietal instead of the bi-temporal diameter has to engage the conjugate and requires excessive moulding.

Third degree—conjugate below 8 cm.

This is very little improved by a normal transverse diameter, because even with the bitemporal engagement excessive moulding is required and the prognosis for a pelvic delivery is bad.

Diagnosis

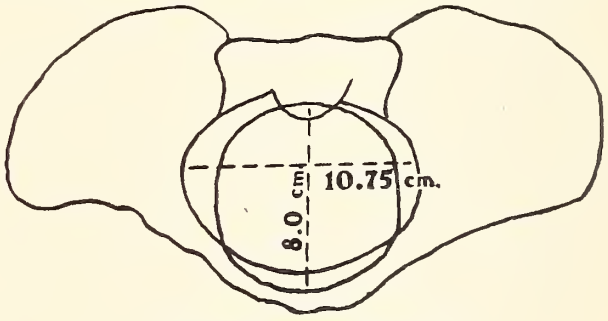
Contracted pelvis should be thought of in women of small stature, short legs, especially the thighs, pendulous belly, obliquity of the uterus, breech presentation in a primipera, waddling gait and non-engagement in the last few weeks in a primipera. To make a positive diagnosis, it is necessary to measure the pelvis. If the external conjugate measured from the tip of the fifth lumbar spine to the top of the pelvis is down to 17.5 cm. (20 cm. is normal) there is definite evidence of contraction. If the interspinous measurement is down to 22.5 cm. (26 cm. is normal) and the interest down to 25 cm. (20 cm. is normal) there is definite contraction. The thickness of the bones and tissues varies greatly, but on the average 9 cm. is deducted from the external conjugate to get the conjugate vera; and 10½ cm. deducted from the interspinous measurement to get the transverse diameter. The internal measurements further verify the external measurements as to the possibility of a contraction. Even all these measurements are not sufficient to manage a case, and the capability of the pelvis to allow the fetus to pass through it, can be actually decided in the majority of cases only by a trial of labor.



Simple Flat

Trial of labor

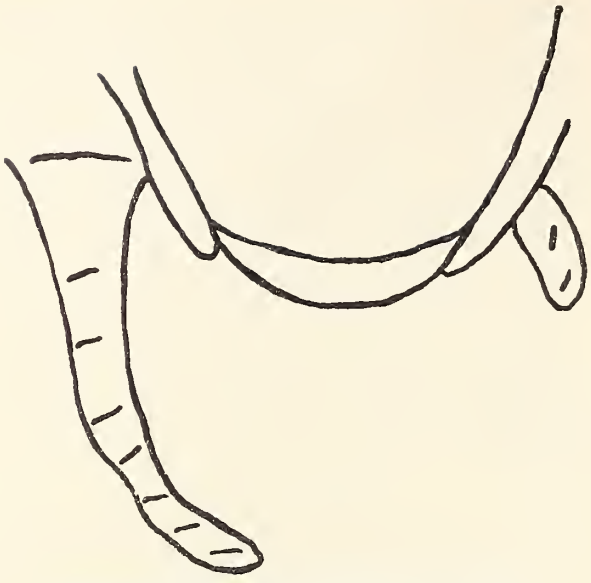
In a multipara there is the history of previous confinements, but in a primipera there is a number of unknown factors which exist in a case of contracted pelvis which will decide whether the head will pass the brim. In the first degree of contraction practically all will deliver vaginally, in the third degree of contraction very few will deliver vaginally. In the second degree systematic observation of the patient in the hospital is absolutely necessary to avoid unnecessary major operative procedure, and not to delay necessary major operative procedure too long.



Generally Contracted Flat

The patient is allowed to go into labor, the position of the head in relation to the pelvic line having previously been determined. When the pains are well established, a vaginal examination is made to note the manner in which the membranes bulge, the adaptation of the head to the brim, and the size of the cervix.

If the membranes project in a normal manner through the cervix the condition is favorable if they form a large bag into the vagina there may be too much dis-



Membranes intact, dilating cervix well. Condition favorable.



Membranes bulging out of proportion to degree of dilatation of cervix. Condition unfavorable usually resulting in premature rupture.

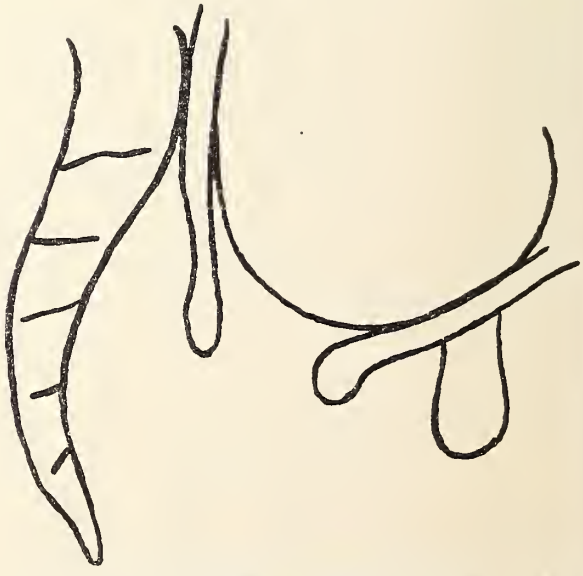
proportion. Care is necessary not to rupture the membranes. The patient is allowed to go on in labor. Rupture before full dilatation goes with a large bag of waters, and is evidence of disproportion, showing that the head is not able to fill the lower segment of the uterus, but does not necessarily mean too great disproportion.

First estimate: Half an hour after the rupture of membranes, a second vaginal examination is made. If the cervix projects into the vagina in front of the head, the prognosis is bad, and a Caeserian section without further delay is necessary. If the cervix is applied to the head in an even ring all around, and if during a pain the head comes down against the cervix, although it may easily be dislodged, the prognosis is still fair and labor may be allowed for another four hours, when the third examination is made and a final decision established.

Second estimate: If the cervix has not dilated further and the cervix has reformed, delivery through the pelvis cannot be expected. If the cervix has further dilated,



Membranes ruptured, cervix crowning head and continuing to dilate, condition favorable



Membranes ruptured. Cervix reformed in front of head, head not entering brim, condition very unfavorable.

then the head will be found engaged, delivery is to be expected, although, having passed the brim, the advanee will be slow, and the eompletion will be by foreeps in many of the cases.

Thus the deeision between Caeserian seetion and pelvie delivery will be made, at most, four hours after the rupture of the membranes. If the patient is handled under aseptic conditions in the hospital, this wait will not damage the ehanees for a seetion, and will do away with a great number of unneeessary sections being done. In all eases of contraeted pelves the head is subjeeted to moulding more in one or the other of the diameters, and the injury to the skull of the infant is minimized by the judieious use of low foreeps.

Among the deliveries there were ten eases of contracted pelvis, whieh will be eonsidered in detail:

	Sp.	Cr.	Tr.	Bd.	Cv.	Tra.	Pres.	Para.	1	2	3	Del.	Mort. F.M.	Morb.	Prev. Del.
1.	21	25	28	17½	8½	11	ROA	4	9	1¼	8	1	0	0	All Instr.
2.	23½	27	31	17½	8½	13½	LOA	3	7¼	1	27	N	0	0	N. Del.
3.	23	26½	32	17½	8½	13	LOA	1				N	0	0	0
4.	22½	26	28	17½	8½	12½	LOA	2	8	4	7	N	0	0	N. Del.
5.	28	30	32	17	8	18	LOA	1	16	2	38	N	0	0	0
6.	27	28	27	17	8	17	ROP	2	5½	1	10	N	0	0	2 da. Mis. 4 mo.
7.	23	24	27	17	8	13	RSA	1	16	2	7	N	0	0	3 da.
8.	23½	26	30	16½	8	13½	LOA	2	8	4	7	I	0	0	0 N. Del.
9.	21	25	28	15½	7½	11	ROP	1	5	4		N	0	0	0 (Prem. 7mo.)
10.	22½	26	28	17	7¾	12½		2				Caes.	0	0	3 da. (Prev. Caes.)

TABLE 1. Detailed observations in 10 cases of contracted pelvis.

The first four eases were of the first degree eontraetion; the second four cases were of the seeond degree eontraetion and the last two of the third degree contraetion.

The normal cases delivered had an instrumental delivery percentage of 0.5 per eent, the eontracted pelves 10 per eent; the morbidity for the normal cases was 9½ per cent, for the contraeted pelves 33⅓ per cent. The only two eases of prolapsed eord in 212 cases delivered oeeurred in the eases of eontracted pelves, an ineidence of 20 per cent. Caeserian seetion was done in 10 per eent of the eontraeted pelves, in normal eases in 0.5 per eent. A right occipito-posterior position oeeurred in 5.5 per eent of the normal eases, and in 20 per eent of the eontraeted pelves.

Complications

Inability of the head to engage in the brim causes abnormal presentations, especially breeeh presentation. The membranes may rupture early because the head eannot fill the lower segment of the uterus, thus predisposing to infection, and to prolapsed eord. Prolonged pressure and exeessive moulding eauses the fetus to suffer severely.

Management

Eaeh ease must be dealt with on its individual merits. Aseptie technique must be insisted upon during the trial of labor. Administration of sedatives during the first stage is very important, to save the strength of the mother. If the first stage is very long, the seeond stage must be shortened by low foreeps, unless the seeond stage is very short. Although the after-eoming head moulds more easily than the fore-coming head, the time of the after-coming head in eoming through the pelvis is mueh shorter, the prognosis for the infant is much worse, and version is not reeommended in eontraeted pelvis ordinarily, unless it is the only expedient left with a face or a brow presentation. The Walcher position is at times helpful in inereasing the conjugate diameter of the brim. High forceps is mentioned only to the eondemned. If vaginal delivery is not to be expeeted after a trial of labor, as mentioned above, and if there have been but few vaginal examinations made under aseptie conditions, Caesarian seetion offers the best solution of contracted pelvis. In eases of absolute infection from many examinations, in whieh vaginal delivery is out of the question, and the ehild is still living, the Porte's operation, Caesarian seetion on an exptraperitonealized uterus, is the method of choice. Induetion of labor after the thirty-seventh week helps in cases where a history is given of a previous spontaneous delivery of a dead infant of larger size. In distorted pelvis, Caesarian seetion is the method of choice.

THE MAJOR INDICATIONS FOR CYSTOSCOPY*

HAROLD T. LOW, M.D., F. A. C. S.
PUEBLO, COLORADO

During the past ten years, I have had the opportunity of arriving at certain definite conclusions regarding the status of cystoscopic investigation of the urinary organs as it is fixed in the minds of the average practitioner. I have classified the latter under the following heads: first, those who believe the procedure is a relic of the Spanish Inquisition, and damn it whole-heartedly; second, those who recognize its importance in the field of urological investigation, but who are not thoroughly informed as to the indications and contraindications for its use; third, those who have as yet only a vague idea of the procedure and the knowledge to be gained thereby.

The first group, perhaps, has some basis for its critical attitude. Ill-advised, rough and incompetent cystoscopy by embryo urologists, by general men without training, who have been sold their cystoscopes by an enthusiastic travelling representative of some instrument house, certainly are factors tending to bring discredit on this otherwise scientific measure.

The second and third groups are those whom I hope to impress.

In my association with general men of, at least, average intelligence and ability, who are more than willing to co-operate, I have been deeply impressed with the need of continuous instruction in the urological field. Certainly, if one reviews the advances in urology during the last decade, such as the perfection of instruments both for diagnosis and treatment and the increased knowledge relative to the various pathological conditions of the genito-urinary system, he cannot but admit that with the advances in the other specialities as well as in general medicine, no one man can keep absolutely abreast of the times.

Accordingly a brief discussion of the indications for cystoscopic examination may be of value to the general practitioner and help him to determine under what conditions such an examination should be instituted.

While there are exceptions to every rule, it is believed that the following indications, regardless of their evident dogmatism, are safe to follow. It is assumed that before a cystoscopic examination is employed, a very careful history has been taken together with such other preliminary general and urological routine examination as may be necessary to either prove or rule out the indication.

One of the very common conditions met with is pyuria. The finding of pus in the urine over a period of several examinations should be designated pyuria until such a time as the source of such pus is found and a definite diagnosis made. It must be understood that acute pyuria, or acute febrile urinary infections are in themselves contraindications for the immediate use of the cystoscope. A glimpse at the picture of the gross anatomy of the genito-urinary system with its many intricate accessory glands is sufficient for us to realize that the source of pus in the urine may be anywhere from the renal cortex to the meatus urinarius in the urinary system and from the seminal vesicles, and prostate in the genital system.

Many pyurias can be correctly diagnosed by the Three, or Seven, Glass Test of Thompson Walker. Even given proof positive that the source of pus is in the prostate and vesicles, there is often a coexisting infection of the upper urinary tract and, under these conditions, cystoscopy is indicated. Granting the possibility of a clinical diagnosis of renal infection, cystoscopic investigation is indicated in order to complete the picture. Such information as the presence of one or two kidneys, the presence of embryological anomalies, the function of the respective kidneys, thus giving the degree of kidney destruction and many other conditions as found by cystoscopy, ureter catheterization and urography, is knowledge of prime importance. Persistent pyuria, therefore, demands routine urological examination, and will frequently require cystoscopy.

*Read at the December, 1929, meeting of the Pueblo County Medical Society.

The symptom complex of frequency, dysuria and difficulty usually understood to be attendant on inflammation of the bladder, and universally designated cystitis, especially when persistent, unreservedly call for further examination. While the symptoms may be due to bladder inflammation, the inflammation itself is due, in 90 per cent of cases, to pathology elsewhere in the urinary or genital tract. Any chronic cystitis unresponsive to treatment in a young or middle aged person of either sex is sufficient warning to search for the tubercle bacillus, and, if found, more complete examination of the upper urinary tract is neeessitated. The presence of pus in the urine is indicative of impending disaster to the patient.

The presence of blood in urine, either mieroscopic or maeroscopic, frank or hidden, transient or continuous, is one condition above all others that demands eomplete and intelligent urological examination. Perhaps no other finding is treated with such contempt as an occasional hematuria. Often, methods and drugs are immediately used to control the bleeding, and this is the very one thing that should not be done. The finding upon one examination of blood in the urine is when cystoscopy should be done. A multitude of causes have been given for hematuria, but, if we forget them all except three, we shall be doing our patients the greater amount of good in the long run. Hematuria is potentially indicative of malignancy, calculus, or tuberculosis somewhere in the urinary tract. If this is foremost in our minds, many cases of careinoma of the kidney, bladder or prostate will be found early, and if a eure is to be expected, it can only be in the early stages before metastasis and large involvement of the organs have taken plaee. Many eases of early renal tubereulosis will be found before involvement of the seeond kidney, and the patient given a better prognosis. Many eases of early ealculus disease will be diagnosed and the proper surgieal or palliative treatment instituted before total destruetion of one, or both kidneys. Never treat a hematuria, regardless of the severity, until a diagnosis is made. It may be six months, or a year, before it reeurs, and then be too late for the patient.

Much has been said pro and eon of subjecting obstruetive prostates to cystoseopy. I am one who firmly believes that every ease of prostatism, with the possible exception of the acute retention type due to inflammatory engorgement, should be cystoscoped. The reason for many failures after prostateetomy is because of a laek of true, definite, preoperative knowledge as to the exact condition present. How else are we to determine the cases of residual urine due to small middle lobe, medium bars, sclerotic sphineter eollar formations, none of which can be felt by rectal palpation? We should know before operation if ealculi or diverticulae exist. Especially is this true if we ehoose the perineal route.

Cystoscopy is, without doubt, a disagreeable necessity, temporarily highly objectionable, but the ultimate results in proper hands warrant the procedure.

Every case of renal colic, be it ever so slight in intensity, demands investigation, for this symptom may be a timely warning of beginning hydronephrosis, or any of the other various destructive kidney lesions.

While morphine should not be spared to eontrol a renal colie, the patient should be definitely informed that cystoscopy, ureteral catheterization, and x-ray must be done in order to determine the cause of his colie.

In the past few years, it has been my experience to have had about twenty-four cases of proven ureteral stricture on the right side. It seems rather signifieant that eighteen of these patients had had previous appendeetomy for so-ealled ehronic appendiees and up until sueh time as proper dilation was substituted had their same old symptoms. This is the common experience of most urologists judging from the innumerable reports one sees in eurrent literature.

The definite indieation in all these above types of cases is primarily for diagnosis and not for treatment. Any ehronic, obscure, ill-defined pain in the abdomen, not definitely diagnosed, calls for eystoscopic investigation.

We have many cases in women of fre-

quent, painful urination both day and night, where, upon examination of the urine, nothing can be found that accounts for the condition. Then we must look into the bladder and urethra and, if necessary, catheterize the ureters and make pyelograms to diagnose this distressing condition. Many cases of "Hunner's ulcer" occur without abnormal urinary findings.

In this day of preventive medicine, men who are daily assisting the modern female through the pre-delivery stage of pregnancy, are making frequent urinary examinations and very often in the fifth or sixth months are finding pus in the urine. The majority of these cases of pyelitis of pregnancy under the proper palliative measure clear up rapidly and completely; but there is a certain definite percent that will not do well and continue to have backaches, intermittent chills and fever, even going on to the abortive stage after definite injury has been done to the renal parenchyma.

It is in these refractory cases that cystoscopy, with ureteral catheterization and even retention ureteral catheters for from twenty-four to fifty-six hours, very often works like magic in clearing up the case. It is the old proposition again of free drainage.

Cystoscopy is not limited now to the adult. We have instruments of such caliber that we are able to investigate certain chronic urinary conditions in the infant even as young as three months. There are certain congenital conditions in the young that have previously been overlooked because of our inability to investigate the interior of the urogenital system. A general anesthetic is necessary for this type of work. Time has proven that the infant is subject to practically the same upper urinary tract pathology as the adult.

I remember very vividly a remark made by one of the prominent urologists of the country at a recent meeting of the American Urological Association. He said:

"Instruments of precision may easily become instruments of confusion when unguided by training, judgment and intellect." It is only by a thorough training and wide experience, balanced by fair judgment that one becomes competent to institude cystoscopic manipulations.

Cystoscopy to be of value must be performed with the least degree of inconvenience to the patient as well as with the greatest ease to the operator. To accomplish this a well equipped office or room in a hospital, proper armamentarium and well trained nursing assistance is necessary.

A well trained assistant in this work may not seem at first glance to be of great importance, but to again illustrate: At a recent meeting of the Western Branch of the American College of Surgeons, a very prominent urologist was handed a syringe supposed to contain 0.5 per cent silver nitrate for renal lavage. Upon the patient's outcry, it was discovered that the strength was 10 per cent instead of 0.5 per cent. Imagine the resultant effect upon the mucous membrane of the kidney pelvis and ureter. A nurse who is trained especially in this work will not make this mistake.

The making of routine pyelograms, the early cystoscopic treatment of acute kidney infections without first giving palliative measures a thorough trial is to be heartily condemned. To quote E. G. Mark of Kansas City: "While the cystoscope is an instrument of precision, in untrained and unskilled hands its use will invariably result in injury to the patient, malinformation as to the conditions found with misdirected therapy, and prove an obstruction to the advance of urology."

In conclusion, I present the following summary of indications for cystoscopy:

Chronic or persistent pyuria, hematuria, suspected calculus, tuberculosis or malignancy of the urinary tract; so-called chronic cystitis, pyelitis of pregnancy, which is resistant to palliative treatment; obstructive prostates, or other symptoms of bladder neck obstruction; renal colic, and all chronic abdominal pain not otherwise diagnosed.

These indications, with the exceptions of pyelitis of pregnancy and enlarged prostate, apply to the infant as well as to the adult.

COTTON MATHER AND SMALL POX

WILFRED S. DENNIS, M.D.
DENVER

History tells us that at divers times and in sundry places scientific endeavor has suffered at the hands of the Church, or at the instigation of members of the Church, either lay or ecclesiastic. In fact today Public Health is being menaced by ignorant and self-appointed agents of the Divine Plan in this particular and important public problem. Tradition has it that up through the mists and clouds of superstition and ignorance, science and scientific men have been the torch bearers of truth, letting in their light on dark places.

An extremely interesting sidelight upon this time honored tradition has presented itself in the form of a few pages in a very recent biography of Benjamin Franklin, written by Bernard Fay, a French scholar. The following account is derived largely from this source.

In Boston, then a little city of about 12,000 souls, in the year 1721 A. D., there lived two important public characters of different tastes and design. One, Cotton Mather, that Behemoth of the early eighteenth century Puritan God, and the other, Dr. Douglas, scientist. Cotton Mather was a violent man given to ecstasies and fits of temper, both affected and ridiculous. He conversed with angels, struck at the Devil with great gusto by hanging witches, and at their executions delivered terrible sermons to a frightened populace. He also had the gift of revelation and predicted great calamities regularly. In addition he was possessed of a type of social conscience so that no good cause which would allow him the opportunity of appearing publicly to voice his sentiments with great noise and invective ever went unchampioned. Withal he was a regularly elected member of the Royal Scientific Society of London. Dr. Douglas was a highly educated man, the only medical man in America with a doctor's diploma. He commanded the use of several languages, knew history, botany, religions, politics, and political economy. A great traveler, he had visited Puritan Boston, and later returned to establish himself there where already fourteen druggists and several practitioners looked after the public health. Because of his learning and his unorthodox views he soon became one of the leading spirits of a small group of dissatisfied intellectuals that adopted the cynical attitude of the day, adopting, as their major interest, antagonism to the clergy. In one or the other of two famous taverns they were accustomed to gather, as here they might drink and talk unmolested. Cotton Mather had, upon occasion, attacked members of this group of radicals, one of their number in particular he considered as an infamous blasphemer and faithful servant of the Devil. Thus it might be said that the culture and intellectual life of early Boston was divided into two camps, having at their heads the two quite distinct personages.

At about the date mentioned a great discussion was in progress throughout the world: should inoculation be used to combat smallpox. At that time inoculation was known and had been used experimentally in regions of the Near East, and especially in Turkey. Supposedly it had come from Thessaly, traditional home of witches, and from thence to the shores of the Caspian. There resided in Constantinople near the end of the seventeenth century an English woman, Lady Mary Montagu, wife of the English Ambassador to Turkey, who became an inoculation enthusiast so that in 1719 she brought this discovery to London where it was discussed and subjected to experiment. Shortly thereafter there appeared in the proceedings of the Royal Scientific Society of London a study of inoculation as it was practiced in the Levant, and in due course of time copies found their way to Boston and came into the hands of Mather and Douglas. Mather, the exalted enthusiast, became an immediate partisan, while Douglas, with his solid scientific culture, thought such an idea from such a backward and superstitious community to be absurd.

After two years of almost daily predictions of dire calamity by Mather, the blow fell. In May, 1721, eight cases of smallpox appeared in Boston. This grew to an epidemic and the disease raged the entire summer, the entire winter, and on into the spring of 1722. During this time a violent struggle was in progress between the inoculators headed by Mather, and the anti-inoculators with Douglas and his friends at the helm. Franklin's brother James lent the support of his paper to the radical group with whom he was in sympathy. This paper was called the New England Courant. Benjamin, at that time a boy of sixteen, was working for his older brother, and doubtless set the type for the attacks upon Mather during this period. Early during the epidemic there appeared a statement on its pages: "The chief design of the New England Courant is to oppose the doubtful and dangerous practice of inoculating the smallpox." A club was now organized by the so-called liberals called, "The Society of Physicians Anti-Inoculator." The members of this group swore above all, to abuse Mather. By order of the Society, one Dalhonde, published a statement in which he affirmed that he had seen this matter tried out in the French Army twenty-five years ago with deplorable results. In every number of the Courant Mather was attacked as well as the ministers and any others that were assisting him to inoculate the terrified inhabitants. Phrases like the following were common: "Most of the ministers are for it and it induces me to think it is from the Devil, for he often makes use of good men as instruments to obtrude his delusions on the world."

To further torment Mather this group attacked his membership in the Royal Scientific Society of London by publishing a list of the members that was posted in public, showing that his name was not upon the official roster. (It was true that he was a member, but before being listed he must appear personally in London to be officially received.) Not only did this accusation against Mather serve to enrage him more than anything else had succeeded in doing, but it influenced many neutrals to the support of the Anti group. Finally a bomb was thrown through Mather's window during the early hours of the morning where a sick minister was lodged at the time and about to be inoculated. An insulting note was attached to the bomb: "Damn you, I will inoculate you with this, with a pox to you." Mather was saved because in transit the fuse had fallen out, which bit of good fortune he attributed to the providence of God. His reply to this last and attempted physical attack, aided by a group of churchmen favorable to inoculation, was made by pamphlet: "A vindication of the Ministers of Boston from the Abuses and Scandals lately set upon them." It appears that at about this time government agents became interested and the sounds of battle died away.

The results of inoculation during this epidemic are highly interesting although by no means conclusive. The high point of interest is to note the position of the profession of that date, if so it could be dignified, in this matter. Also the leadership of the Inoculators, a Puritan Preacher, who in those days would have been quite justified in opposing inoculation upon the grounds that the Almighty had sent this scourge upon the people for some good purpose known only to Him and Mather. There were 6,045 cases of smallpox. The Mathers inoculated 286 and in this group there were six deaths, a mortality rate of about 2 per cent. There were 844 deaths in the balance, the group whose interests had been fostered by the Anti-Inoculators, a mortality rate of about 14 per cent.

HISTORY AND PROSPECT OF THE DENVER SANATORIUM ASSOCIATION*

ARNOLD MINNIG, M.D.

DENVER

The history of disease is the history of man. Our progress in combating disease, also the progress in the development of man, can be more clearly seen over periods, epochs, or even decades. The Denver Sanatorium Association is now ten years old, and therefore we are ready to see what we have done in this time, and what there is to be done in the next decade.

The first meeting of this association took place on October 17, 1919. It was held in the Assembly Hall of the Denver County Medical Society. Those present were: Drs. Taussig, Beggs, Swezey, Holden, Marshak, Irwin, George, Frank, Levy, and Captain Burroughs—a visitor. The object of the meeting was the formation of an organization for the study of tuberculosis.

Dr. Arnold Taussig was elected temporary chairman, and Dr. Maurice Levy was elected temporary secretary. A constitution was drawn up and incorporated in the minutes. At first there was quite a discussion as to the name of the club. The Denver Inter-Institutional Sanatorium Association was first proposed, also the Denver Tuberculosis Study Club, but finally the present name, the Denver Sanatorium Association, was adopted.

The first permanent officers of the association were elected on October 28, 1919. They were: President, Dr. G. W. Holden, Vice President, Dr. A. S. Taussing, and Secretary-Treasurer, Dr. L. W. Frank.

In the constitution, as finally drawn up and adopted, it was stated that: "The aims of the society are to promote the study of all phases of tuberculosis—clinical, institutional, and sociological."

In the following year, August 18, 1920, the El Paso County Sanatorium Society was organized. Its constitution stated that: "The purpose of the Society shall be to stimulate interest among its members in the diagnosis, care and treatment of tuberculosis, as well as the study of the disease in all its forms." Its first president was Dr. C. O. Giese.

In enumerating the accomplishments of the Denver Sanatorium Association, it is difficult to separate them from those of the El Paso County Sanatorium Society. The two worked hand in hand in the fight against tuberculosis, not only in the two communities but in extending their efforts over the entire state. This co-operation between the two societies has existed at all times, so that the history of the one represents the history of the other; their aims are always to come to the aid of the tuberculous everywhere, and especially in Colorado.

It was not long after the organization of the association that its greatest and most outstanding achievement was begun. At the seventh meeting on October 26, 1920, Dr. C. D. Spivak, that tower of scholarship whose great loss is felt by every one of us, proposed that this association take up the scientific investigation of the factor of climate in the treatment of tuberculosis. "The scientific proof of the advantages of climate in the treatment of tuberculosis" was the thesis given, but there was still another reason for this investigation, and that was the ever harassing criticism by our eastern confreres that we had no proof that climate was of therapeutic benefit.

The Sanatorium Association appointed a committee, consisting of Drs. C. D. Spivak, G. W. Holden, and W. N. Beggs. To this later, were added Drs. Henry Sewall, A. S. Taussig, and R. L. Drinkwater. Dr. Sewall was made chairman of the committee, and to him is due the final accomplishment and publication of the stupendous task, which consisted of an analysis of 23,608 certificates of deaths attributed to tuberculosis, beginning with the year 1908 and going through 1920.

It was found that in this thirteen-year

*Read at the Decennial Anniversary Meeting of the Denver Sanatorium Association, February 25, 1930.



Presidents of the Denver Sanatorium Association. Top row, left to right: W. N. Beggs, Henry Sewall, Lorenz W. Frank, H. J. Corper. Second row: A. S. Taussig, G. W. Holden, M. M. George, James J. Waring. Lower row: Saling Simon, A. T. Cooper, E. H. Bruns.

period, 1,206 persons born in Colorado died of tuberculosis. For the thirteen years under consideration, the average annual deaths from tuberculosis per 100,000 in the registration area was 147.5. In Colorado it was 208.9 per 100,000. But the deaths from the disease developed in Colorado averaged 30.8, so that statistical unprejudiced figures show that the actual deaths from indigenous tuberculosis stands at 30.8 contrasted to a 147.5 per 100,000 in the registration area. This shows in a most convincing way, from an analysis of over 23,000 deaths, that the therapeutic value of climate is indisputable.

The next important move was proposed by Dr. Taussig. He proposed that we have joint meetings with the El Paso County Sanatorium Society, which is the only other Sanatorium Association in the state. The first joint meeting was held in Denver, February 26, 1921. It was at this meeting that Fitzsimons General Hospital first contributed to the program and synchronously, we



Presidents of the El Paso County Sanatorium Association. Top row, left to right: F. A. Forney, H. C. Goodson, C. O. Giese, C. E. Harris. Lower row: S. W. Schaefer, W. H. Swan, A. M. Forster.

see greater co-operation in tuberculosis workers from every side.

On July 17 and 18, 1923, the Denver Sanatorium Association, in conjunction with the El Paso County Sanatorium Society, succeeded in obtaining their first out-of-state guest, in the person of Dr. Allen Krause of Baltimore. Dr. Krause's first lecture was presented before the Medical Society in the Metropolitan Building, and every seat was occupied, and some of the audience were standing. His second lecture was a public one and was held in the Woman's Club. The attendance here was also exceptional.

On February 15, 1924, the association brought another honored guest to Denver in the person of Dr. William C. Voorsanger of the Oakes Sanatorium, Los Gatos, Calif., who talked on "Personal Experiences in the Sanatorium Treatment of Tuberculosis."

In December, 1924, Miss Pelton, secretary of the Colorado Tuberculosis Association, stated that her organization, in conjunction with other state and local organizations, was planning to bring the tuberculosis problem before the public, and asked the co-operation of the Denver and El Paso County Sanatorium Associations. It was out of this that our state tuberculosis clinics developed, and have continued ever since.

During the summer of 1925, we were especially favored in having three lecturers under the auspices of our Society. They were Dr. Allen Krause of Baltimore, Dr. Leroy S. Peters of Albuquerque, and Dr. Florence R. Sabin of Johns Hopkins. These special meetings all aroused a good general interest as was evidenced by the attendance. Dr. Krause also gave a series of lectures in Colorado Springs.

In September, 1926, we were again honored by another distinguished guest. Professor E. R. Long of Chicago gave an address on "The Nature of Tuberculin and the Tuberculin Reaction."

The next important work was that of Dr. Taussing and his committee who stressed the importance of solving Colorado's tuber-

culosis problems by recommending a most important series of constructive improvements. I want to emphasize and recommend that these be given further serious consideration. I will give that report in full.

RECOMMENDATIONS FOR A TUBERCULOSIS PROGRAM FOR COLORADO MADE APRIL 21, 1928, AT A JOINT MEETING OF THE COLORADO SPRINGS AND DENVER SANATORIUM ASSOCIATIONS.

1. The establishment of a tuberculosis sanatorium for the treatment of indigent resident tuberculous patients; preferably in connection with the Colorado General Hospital.

2. That we urge appropriations by our next Legislature that would enable our State Health Department to employ a full time health officer and to organize a tuberculosis department.

3. Such modification of our tuberculosis registration law as would render its enforcement feasible.

4. Provision for the care of tuberculous children.

5. The continuance of the State Tuberculosis Clinics under the direction of the Colorado Tuberculosis Association, provided that no report be made to the patient, but to a physician who has been chosen by the patient to receive such report, and to the State Board of Health.

6. Investigation of the value of the Calmette prophylactic vaccine and the feasibility of using it in Colorado.

7. The use of general hospitals for the treatment of the crises that develop during the course of tuberculosis.

8. The organization of training schools for nurses in the tuberculosis sanatoriums of Colorado and the passage of laws which enable these nurses to practice their calling as registered tuberculosis nurses in Colorado.

9. The passage of laws which would prohibit the sale of milk from cows which have not been tuberculin tested and found negative within a year.

10. That we encourage the organization of a Municipal Tuberculosis Bureau in Denver as outlined by Dr. Waring.

11. The continuation of the work on the study of climate by the Colorado Tuberculosis Association, which until the present has been done by Dr. Beggs, as well as the continuation of the statistical study of mortality which was sponsored by the sanatorium association under the chairmanship of Dr. Henry Sewall.

Respectfully submitted,
DR. WILLIAM N. BEGGS,
DR. JAMES J. WARING,
DR. A. S. TAUSSIG.

We now face another problem. We know that the deaths from tubereulosis are declining. Thirty years ago the deaths in the registration area of the United States were over 200 per 100,000. Today they are 73. The deaths from tuberculosis in Denver six years ago were 576; in 1925, 525; in 1926, 475; in 1927, 459; in 1928, 416; and last year, 390. This, too, in the face of an increasing population. The mortality decline then is plain, but what about the morbidity? How many people are ill with the disease in this state?

Recently Opie found 2 per cent of the school children of Philadelphia afflicted with active tuberculosis. How many school children of Denver, of Colorado, have active disease? How ean we determine how many of the rest of the population have active trouble and, consequently, what are the needs of the state? Registration of the sick would appear to be the first step in the attainment of the answer to this question.

I have put down a few figures which present an impartial view from only one standpoint, viz., the attendance at our Denver Municipal Tuberculosis Dispensary, whieh is about as impartial a criterion as we have at present. In 1914, the year the dispensary opened, the attendance was 697; in 1918, 3,523; in 1924, 5,209. From this year on, the average attendance has been around 5,000. A new factor comes in here, however, and that is the steadily increasing number of children attending the clinic. These figures, of course, include both transients and residents, but nevertheless represent our problem. They would indicate that the indigent patients, sick with tuberculosis, are about the same in number as always. Granting this to be true, the outstanding fact that can be gleaned from this is that our success in the treatment has been nothing short of phenomenal.

The Sanatorium Associations of Denver and Colorado Springs representing, as they do, the highest court in the study of tuberculosis, should, consequently, be given the supreme power in deeisions of all local and state problems in tuberculosis. Municipal problems should be under the direction of its committee. The municipal tuberculosis problem of Denver should be under one head.

Researeh in tuberculosis should be stimulated. So many of us, having regained our own health in this region, know the health restoring qualities of this climate. It seems only fitting that this region should be selected for further intensive study for a cure for

tuberculosis along the same excellent lines already started by the National Jewish Hospital. People of wealth should be appealed to from this standpoint. We should have a standing committee for this purpose.

Greater publicity should be given in the East, West, and even in Europe, to the climatic advantages of Colorado. Associations, such as the Colorado Association, would have our closest co-operation and stimulation.

We have done much in the study of climate, but more needs to be done. It seems to me that a wider field of application could be made in our greater supply of ultraviolet light which is so peculiarly indigenous to Colorado.

CASE RPEORTS

PACHYMENINGITIS HEMORRHAGICA INTERNA*

BY J. RUDOLPH JAEGER, M.D.
DENVER

With the advent of the automobile and the flying machine, injuries to the skull and to its contents have attracted the attention of the surgeon more than previously. Indeed we are gradually realizing that the lives of many of these victims can be saved by proper active treatment, and they should not be merely given close attention until they recover of their own accord or die. "Masterly inactivity" is no longer the dogma of the trained brain surgeon, any more than similar treatment is justified in the case of acute inflammatory abdominal disease. We must now visualize the anatomy and physiology of the head and make a diagnosis in keeping with the pathological process at hand.

The case I have to report is of an injury that is quite frequent and which if left untreated is sure to cause death or a chronic invalidism to which death often is preferable, but, if properly treated, the individual is returned to his family and society as a normal person.

A man, thirty-five years of age, was found lying on the bathroom floor of his home with a liquor breath, and blood streaming from a lacerated wound in the left parieto-occipital region. He was transferred to St. Luke's Hospital under the care of Dr. H. C. Van Norman, who referred him to me five days after he was called, and on the seventh day following his injury.

The man was uncooperative, stuporous, and incontinent, would not take nourishment and seemed to be headed for a fatal outcome shortly. There was a lacerated wound of a stellate type running in three directions, each arm of the wound being about an inch long, in the left parieto-occipital region. The left external auditory meatus was filled with blood clot. Both pupils were of equal size, not constricted or dilated, and reacted normally. There was a mild bilateral choked disc with marked engorgement and tortuosity of the veins. All the tendon reflexes were greatly exaggerated, but equal on both sides. Ankle clonus was present on both sides. The pulse was 116 and the temperature 102° F.

The x-ray examination disclosed a linear fracture running from the left posterior parietal region toward the external auditory meatus where it was lost in the temporal bone; without depression.

On the above findings a diagnosis of a subdural hemorrhage was made, and operation was advised and accepted. Under ether anesthesia, the patient was draped so as to cover the lacerated wound and anterior trephine openings were made. When the dura was exposed on the right side, it was evident from its dark blue color that there was a hemorrhage beneath it. On opening it a small quantity of blood clot came out. The left side was also opened to make sure that there was no hemorrhage on that side. A

*Presented before the Central Neuropsychiatric Association at Denver, September 28, 1929.



Fig. 1. Showing the line of fracture through the posterior squamous part of the temporal bone and running down into the petrous portion of the temporal bone involving the internal and external auditory meati. This was on the opposite side of the skull from the hemorrhage.

moderate sized bone flap was turned down in the frontal region so as to expose the clot. It was found to be about 3 cm. thick and reached from the tip of the frontal lobe to the posterior part of the occipital lobe and well beneath the temporal lobe. Strange to say, the clot was already covered by a definite fibrinous capsule, and it seemed to have contracted and was floating in a pool of blood plasma. The brain was depressed over its whole outer surface, and the clot was washed out with saline solution. On the surface of the frontal lobe, at its middle, there was a blood clot protruding through the arachnoid where the hemorrhage had apparently originated from a subarachnoid vein that had ruptured. The bone flap was wired in place with silver wire leaving a decompression opening in the temporal region after first closing the dura except beneath the decompression opening. The skin was closed with silk sutures without drainage. At least 350 c. c. of blood was removed.

Convalescence was uneventful; the patient was out of bed on the sixth day, and left the hospital on the fifteenth day after operation. One month later he was examined by Dr. Mark Glazer in Los Angeles, and was pronounced normal in every respect, except for a tinnitus in the left ear, and able to resume his occupation as a structural steel worker.

Discussion

The case here reported represents undoubtedly the beginning of a chronic process which ends in the well known pachymeningitis cyst, an example of which is shown in Figure 3. This drawing was taken from a specimen found in a cadaver of unknown origin. In the long standing cases, of course, it is impossible to be sure from where the hemorrhage came, but surely in

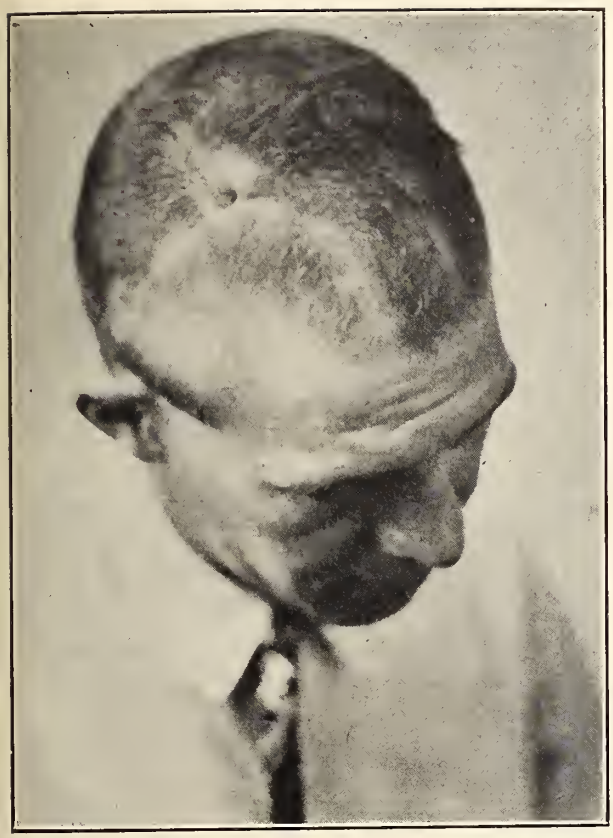


Fig. 2. The scar caused by the operation after five weeks. It is well within the hair area and will leave no visible scar.

the acute traumatic cases, it is most frequently seen coming from the subarachnoid veins and probably most often from the veins where they pierce the arachnoid to reach the large veinous sinuses. Whether the hemorrhage is from the subarachnoid or dural vessels, or from injury to the large sinuses, once the blood is in the subdural space the mechanism of the clot encapsulation is the same. Fibrin forms as in any other mass of blood, it contracts enclosing the corpuscles, leaving a firm clot surrounded by a quantity of plasma. This clot is quickly covered by a thin layer of mesothelial cells, probably having their origin from the mesothelial cells of the reticulo-endothelial system of Aschoff. Fibrous tissue and blood vessels are formed beneath the mesothelial coat and soon the clot is invested by a tough membrane. It is characteristic and rather peculiar that the vessels to the membrane are formed from the dura. Strands of fibrous tissue and large vessels can be seen bridging between the dura and the capsule of the tumor. On the arachnoid side the capsule is free and not adherent to any part of the arachnoid.

The drawing, Figure 3, shows rather clearly its close attachment to the dura, and the branches which feed it, which come chiefly from the middle meningeal artery.

These cysts show evidence of frequent hemorrhages inside them from time to time, and the content is made up of old disintegrated blood clot mixed with a large amount of blood pigment. It has been thought that the capsular mesothelial cells destroy the blood corpuscles, thereby forming biliverdin and bilirubin from the hemoglobin which is disseminated through the tumor mass. Not only is the thick capsule infiltrated with these pigments but it is found distinctly staining the adjacent arachnoid and the cortex. The amount of pigment certainly appears to be much greater than can be accounted for by the destruction of the original quantity of blood contained in the capsule.

Gross and microscopic differences have been described in those tumors caused by trauma and those usually supposed to have been caused by alcoholism and insanity. Surely alcoholism and insanity would make

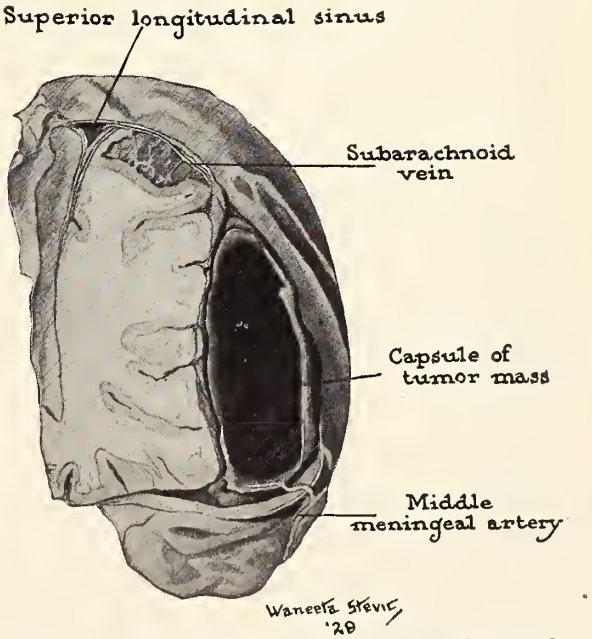


Fig. 3. A drawing made from a specimen of a chronic pachymeningitis hemorrhagic interna cyst showing the firm capsule that forms around the blood clot. Its loose attachment to the dura and arachnoid with its new blood supply from the middle meningeal artery is shown here. Also a subarachnoid vein, which is the one usually injured, that causes the massive hemorrhage.

an individual more apt to receive traumatic injuries, though it has not been clearly proved that such is the cause of their frequency in these conditions. A trivial injury that may pass unnoticed may sometimes result in a massive subdural hemorrhage.

From a practical surgical point of view the treatment of the two types (if there be a difference) is the same when they have reached the encapsulation stage. Usually, if not of immense size, they can be stripped from the dura with ease, as they are not tightly adherent to the arachnoid. The greatest difficulty in operating on the chronic cases is that in pulling the capsule from the dura the small vessels that feed it are torn and, while the hemorrhage from them is not profuse, at the same time it is persistent and in an awkward place to control. The vessels run into the capsule at its very edge, which is usually placed well beneath the temporal lobe and are quite inaccessible for ligation or clipping through the usual craniotomy opening. This frequently necessitates a reopening of the wound to clean out the postoperative clots which form from these untied vessels. To obviate this complication, I believe that preliminary to the actual craniotomy, if one of these tumors be found when making the perforator openings, it is advisable to ligate the middle meningeal artery through a subtemporal decompression opening well down towards the foramen spinosum. It is probably always best to leave a subtemporal decompression as the postoperative cerebral edema is apt to be considerable, and this may be the factor in tiding the patient over this critical period.

PHLEGMONOUS FUNICULITIS

FRANK E. ROGERS, M.D.
DENVER

W. E. Q., a carpenter, aged fifty-five, was admitted to hospital on February 25, 1930, on account of a swelling in the left inguinal region and scrotum. He reported that he had been feeling well till February 22, 1930, when he was doing some heavy lifting and felt "something give way suddenly" in the left inguinal region and scrotum.

The past history showed he was operated on for an adenomatous prostate on October 3, 1929, and made an uneventful recovery. He had had the usual diseases of childhood, and typhoid fever at the age of eighteen. The family history was unimportant, except that his father had died at fifty-five of kidney trouble.

Examination showed his general condition to be good. There was a healthy midline suprapubic scar. The left inguinal region was swollen, firm and tender, and the left scrotum showed a hard mass involving the cord and testicle with an area of fluctuation about the testicle.

Laboratory report: The urine is cloudy, acid, the specific gravity 1017, albumin and indican are present, there is no sugar, pus cells 2, red blood cells 2, no casts, bacteria 4. The blood shows erythrocytes 4,000,000, hemoglobin 80 per cent; leucocytes 14,250, polymorphs 91 per cent, small lymphocytes 9 per cent.

Operation: On February 26, 1930, an incision was made over the tumor, the cord was divided at the internal abdominal ring and the whole inflammatory mass extirpated.

Pathological report: The testicle has the epididymis and spermatic cord attached. The entire structure measures 14 cm. in length. The testicle measures 5 by 3 by 3 cm. and its cut surface appears normal. The epididymis and spermatic cord are large and swollen with a maximal diameter of 3 cm. The color is purple red and there are many small hemorrhages. The tunica vaginalis has rough and adherent surfaces with thick, yellowish exudate.

On microscopic examination the tunica vaginalis is found to contain many polymorphonuclear leucocytes. There are also many polymorphonuclear leucocytes between the tubules of the testicle. The cells lining the tubules are necrotic and in many tubules are separated from the walls and fill the lumen.

The lumen of the ductus deferens is also packed with polymorphonuclear leucocytes and there are many in the surrounding tissue. The epididymis is also markedly infiltrated with polymorphonuclear leucocytes.

Pathological diagnosis: Acute orchitis; acute epididymitis; acute inflammation of the tunica vaginalis.

Cultures showed B. coli.

The wound was closed with drainage.

The patient was discharged on March 12, 1930, with the wound healed.

PUBLIC HEALTH NOTES

EDITOR J. W. AMESSE, M.D.

League of Nations and diphtheria

A study of immunization against diphtheria in various countries is being undertaken by the Health Section of the League of Nations. The study is carried out in a uniform manner so as as to permit comparison of results. All the investigating groups have the same research material and use the same methods and procedure. The committee is collecting information concerning 20,000 immunizations against diphtheria in Czechoslovakia, Denmark, France, Great Britain, Germany, Jugoslavia, the Netherlands, Poland and Rumania. Immunization against scarlet fever will also be studied and the results of 10,000 immunizations in each of the countries previously mentioned, except England, will be recorded.

Diphtheria in the state of New York

Attention has been called to the vigorous campaign carried out by the state of New York to combat diphtheria. Evidence of the effectiveness of this campaign is seen in the low morbidity and mortality rates established during 1929. The death rate was 3.4 per 100,000 and the case rate 40, as compared with 3.9 and 52 over the preceding year. Thirty per cent of the cases and 31 per cent of the deaths occurred in one city where unfortunately an active campaign was seriously impeded by the influenza epidemic. Exclusive of this city the death rate was only 2.6 and the case rate 31. Thirteen cities had no cases and twenty no deaths. Seven villages with over 10,000 population also had no deaths in 1929. Three counties had no cases and twenty-six no deaths.

National leprosarium at Carville

The National Home for Lepers maintained by the U. S. Public Health Service at Carville, Louisiana, admitted 49 new patients during the year. The average number of residents for the year was slightly more than 300 patients. Nineteen patients were released as no longer a menace to the public health; six additional patients complied with the requirements for parole, but owing to their deformities and disfigurements which could not be cured, they elected to remain in the hospital rather than be subjected to the hardships and humiliations which are frequently the portion of many paroled lepers.

New York State Public Health Commission

The first meeting of the special Public Health Commission recently appointed by Governor Franklin D. Roosevelt was held at the Academy of Medicine in New York City on June 5. Dr. Livingston Farrand, president of Cornell University, as chairman of of the Commission, presided. The governor's purpose in appointing this Commission is to have a study made of the public health needs of the state and of the working of the various state and local health authorities and their relations one to the other. It is seventeen years since a similar Governor's Commission in New York brought the state to the front rank in this important field.

Among the major topics to be considered are: adequate hospital and medical care for the sick; development of full time local health service on the county basis and for the larger cities; and the future needs in mental hygiene.

The studies of the Commission will be devoted to making available to the people of the state the practical application of every proven means of health protection and disease control.

Infant mortality rate highest in Washington

The national capital has the highest infant death rate in the country—19.2 per 1,000 under one day old, as compared with an average of 15 per 1,000—according to Drs.

Leon S. Gordon and Oscar B. Hunter, Washington. They made this statement before the District Medical Society on May 7.

Court decision relating to public health

State tuberculosis hospitals required to be maintained by State.—(Oklahoma Supreme Court; St. Louis-San Francisco Ry. Co. v. Morris, County Treasurer, 288, P. 306; decided May 13, 1929.) A state law provided as follows:

"For the purpose of defraying the expense of transportation, and treatment of patients afflicted with tuberculosis at the district sanatoria herein provided for, the excise board of each county is authorized to make an annual levy upon all property in the county, subject to taxes, on an ad valorem basis, of not exceeding 1 mill per annum, which is hereby declared not to be a current expense and to be for a special purpose, known as "tuberculosis fund," in addition to the maximum levy for current expenses now provided by law."

It was contended that this statute was unconstitutional because violative of article 21 of the State Constitution which was as follows:

"Educational, reformatory, and penal institutions and those for the benefit of the insane, blind, deaf, and mute, and such other institutions as the public good may require, shall be established and supported by the state in such manner as may be prescribed by law."

In its opinion the Supreme Court said:

"We think that institutions for the treatment of tuberculosis are not for the care of the aged, infirm, or misfortunate, as provided in section 3, article XVII, of the constitution, and that they are, by clear implication, included in the meaning of article XXI, supra.

"Under the rule announced by this court in the case of Board of Commissioners of Logan County v. State ex rel. Short, supra, article XXI, supra, places the burden of maintaining such institutions upon the state, and the legislature is without authority to make the counties of the state liable for any portion of the expenses necessary to their maintenance."

Tuberculosis in Belgium

On the occasion of the Centenary of National Independence, the Belgian government contributed the sum of one hundred million francs to the fight against tuberculosis. At present there are in Belgium 2,700 sanatorium beds; this gift from the government will permit an increase of 3,300 beds at a cost of 3,500 francs each. The various associations dedicating their efforts to the prevention of tuberculosis such as the National League and the National Association for the Conservation of Child Life have recently combined under the presidency of Dr. Bordet. It is expected that this consolidation will foster a more vigorous campaign against this scourge of childhood.

LIBRARY NOTES

EDITOR J. J. WARING, M.D.

The editor of this column is happy to record that the late Dr. Walter A. Jayne left the sum of $500 to the library for the purchase of books on the history of medicine. He also left a bequest of $2,000 to the building fund for the library.

It may reasonably be expected that the example of one who was so widely respected and whose judgment was so universally admired will lead to other bequests of the same kind. No man wishes the material wealth which represents the effort and conservation of his life's work to be squandered after his death. The gifts of Dr. Jane will serve a noble purpose in contributing to the cultural wealth of many future generations of his and of our colleagues.

BOOK REVIEWS

Hydatid Disease, Its Pathology, Diagnosis and Treatment. By Harold R. Dew, M.B., B.S., F. R. C. S. (Eng.), F. A. C. S. Sydney: The Australian Medical Publishing Company, Limited. 1928.

According to the preface, "this book marks the culminating point in a series of researches on the biology, pathology and diagnosis of hydatid disease." It certainly seems to contain everything that was ever heard of on the subject, and will be a valuable book of reference in the study of the comparatively rare cases found here in Colorado.

It appears that echinococcus cysts were known

to the ancients, references to them being found in the Talmud and in the writings of Hippocrates; but "it is to Lenchart (1867) that we owe the first complete and accurate account of the life history and morphology of the parasite."

The definitive hosts of the tenia echinococcus are the dog, the wolf, the jackal, etc.; man and the herbivora being merely intermediate hosts, where the parasite exists in its cystic form. The infestation of man, according to the author, occurs most frequently from actual personal contact with infested dogs, and not from drinking water and green vegetables as is often supposed. The disease is acquired usually in "youth or even infancy, although the resultant cyst does not manifest itself till much later in life, appearing clinically between twenty and forty years of age." It is almost universally distributed, but is much more common in sheep-raising countries, such as Australia, New Zealand and the Argentina. "It is strange that the disease is so rare in the United States, in spite of the fact that climatic conditions seem favorable and a great number of sheep are pastured." A note of warning is sounded to be on guard against its spread.

In man the embryos are taken into the stomach where they are hatched and then bore through its walls, or those of the upper part of the small intestine, usually into the radicals of the portal vein, through which they are carried to the liver, thus accounting for the more frequent occurrence of cysts in that organ. On the other hand, if the embryos enter the inferior vena cava they pass through the heart to the lungs, where they generally lodge, although they may go through its capillaries to the brain, the bones or to almost any part of the body. The cysts may reach a very large size, containing perhaps many litres of clear fluid, full maturity being "denoted by the formation from the nucleated germinal layer of special sacs called brood capsules in which the scolices or future worm heads develop." Frequently in man another type of growth occurs, consisting in the formation of "daughter" cysts inside the confines of the original "mother" cyst. "One of the most striking features of the disease is the fact that infestation with enormous cysts may be consistent with apparently perfect health, although there is no doubt that definite specific toxic effects may be produced by the parasite."

The diagnosis usually can be made quite easily, with the microscope, from aspirated fluid, which generally contains scolices or hooklets. In addition the fluid is distinguished by the small amount of coagulable protein which it contains, as well as by its antigenic properties. The x-ray is often of great assistance, especially in the pulmonary type of lesion, and the presence of eosinophiles is suggestive. Precipitin reactions, complement fixation tests, and intradermal reactions (Casoni) are of service when it is possible to obtain the material with which to carry them out.

In the liver 75 per cent of the cysts occur on its inferior aspect, where they are readily palpable, often attaining an enormous size. They may be retrocolic, simulating a renal tumor. They sometimes may be distinguished by the presence of 'hydatid fremitus"—like "the feel of a vibrating clock spring inside a football."

As regards treatment, "no internal medication is of any avail." Aspiration is dangerous, "unscientific and unreliable" and has been "totally abandoned in favor of comparatively riskless and efficient direct surgical attack." Attempts at enucleation are seldom justifiable. In order not to inoculate the peritoneum it is better to avoid aspiration until the cyst has been exposed and isolated by packing. In single cysts part of the contents is then evacuated and enough formalin injected to approximate 1 per cent of the remaining fluid. After this has acted for two or three minutes all of the fluid is removed and the mother cyst extracted from within the sac with forceps. Daughter cysts somewhat complicate the procedure. They are best handled with a tablespoon, swabs and irrigation.

After emptying the cyst marsupialization is the safest procedure. Convalescence, however, is apt to be tedious, so that some surgeons prefer to close the cavity completely, with or without filling it with salt solution, frequently obtaining rapid healing in this way, although a secondary drainage may eventually be required.

"Primary hydatid disease of the lungs occurs next in frequency to that of the liver," being either primary or secondary. It is most frequently found in children, generally on the right side, and is often latent for long periods. Radiography is of great assistance in the diagnosis, revealing a characteristic spherical shadow, which is less dense than that of a neoplasm and not so sharply outlined.

In the treatment, aspiration is dangerous and much less effective than open operation under either general (intratracheal?) or local anesthesia. Following costal resection, the cyst is opened and handled much as in hydatids of the liver. In the absence of adhesions they may be induced by appropriate means before the main operation is undertaken.

Other chapters deal comprehensively with hydatid disease of the pelvis, brain, bones, muscles, etc. Altogether, the book is an exhaustive, well written, monograph, invaluable for reference when occasion requires. LEONARD FREEMAN.

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1929. Chicago: American Medical Association, 1930. P. 81. Price $1.00.

As the title plainly indicates, this volume consists simply of reprints from articles published last year. Those who desire to have these articles for reference in a convenient form and furnished with an accurate index will be grateful for this neat little compilation.

J. ROSSLYN EARP.

Infant welfare in Mexico

The first ten years' work of the infant welfare service of the Mexican department of health is full both of accomplishment and of promise, if we may judge from the illustrated report that reaches us this month. Mothers and children receive every care that modern medicine affords in an ideal welfare centre. Visiting nurses carry popular health instruction into the homes. The school of puericulture opened in September of last year with a postgraduate course for physicians. Courses have also been given to teachers and to nurses. We congratulate our neighbor, the Estados Unidos Mexicanos, upon its enlightened and progressive policy.

Secretarial Notes and Comment

Edited by Harvey T. Sethman, Executive Secretary

PROGRAM CHANGES

OFFICIAL programs of the Sixtieth Annual Session will be mailed to all members within the next few days.

As an additional reminder of the changes which have been made by the Committee on Scientific Work since the tentative program was published in the July issue of Colorado Medicine, members should note the following:

Dr. William Gerry Morgan of Washington, D. C., President of the American Medical Association, will be the honor guest and principal speaker at our annual subscription banquet, to be held at the Pueblo Country Club the evening of Wednesday, Sept. 10.

Dr. John A. Wolfer of Chicago has found it impossible to attend the meeting, and his paper on "Some Newer Concepts of Gall Bladder Disease" has therefore been removed from the program for Thursday morning, Sept. 11.

Dr. William C. Bane, Denver, will read a paper entitled "Vertigo Due to Errors of Refraction" at the morning session of Wednesday, Sept. 10, as announced in the August issue of Colorado Medicine.

Dr. F. P. Gengenbach, Denver, will read a paper entitled "Infant Feeding Suggestions for the General practitioner" at the morning session of Thursday, Sept. 11.

Watch for the official program—read it—and come to Pueblo!

THE BIGGEST EVER!

May the management of Colorado Medicine boast a bit? And call attention to the fact that the current issue is the largest single issue of Colorado Medicine ever published? In case you do not care to count the pages, may we note that this issue numbers 106 pages, including covers? And that despite this size it is financially self-supporting?

Continuance of this success depends not alone upon the management of the Journal. It depends equally, if not more, upon the individual members of the Colorado State Medical Society. The size is dependent upon advertising. The original signing of an advertising contract may depend upon the management, but the continuance of advertising contracts depends upon the members, for unless advertisers can see profitable results from their contracts, they will not renew them. And they will see these results if individual members will patronize Colorado Medicine advertisers in preference to non-advertisers, and always mention Colorado Medicine when so doing.

WARNING!

FROM one of our members in Longmont comes word that a salesman-crook pretending to represent a well-known national clothing and uniform company is victimizing doctors and dentists. The man exhibits apparently satisfactory credentials in the form of printed order blanks and sales-books. He takes orders for office coats and uniforms and accepts deposits on account, the balance supposedly to be paid direct to the national company upon delivery of the uniforms. The uniforms never arrive and correspondence with the firm in question shows that the supposed salesman is an imposter.

In view of existing libel laws, details concerning the man will not be published here, at least until some official action has been taken. But all physicians should take heed and should pay no money to such a salesman without first communicating with our Executive Office, unless the salesman is personally known to the purchaser.

THE DENVER MILK SITUATION

B. B. Jaffa, M.D.*

In 1923, a survey of Denver's milk supply revealed some deplorable conditions. There were about 160 retail dairies, most of which were selling raw milk. Some were attempting pasteurization but were neither properly equipped nor instructed. In many dairies no attempt was made to sterilize the containers in which milk was delivered to the consumer. In many instances cows were found wading knee deep in filth and no attempt was made to properly groom them before milking.

The average bacterial count at that time was 305,000 per cubic centimeter. An educational program was undertaken to teach dairymen how to produce, handle, and distribute safe milk. In 1924, an effective ordinance was passed making

*From the Department of Health and Charities of the City and County of Denver. Written at the request of the Executive Office for the information of the Society in view of recent widespread newspaper comment concerning the status of Denver dairies.

possible rigid inspection of Denver's milk supply and the enforcement of regulations which would insure modern methods of milk handling. It was required that all herds supplying milk to the City of Denver be tuberculin tested and that all reactors be eliminated from the herd. Sterilization of milk bottles and equipment was enforced. Proper regulations for pasteurization were instituted, with the installation of time and temperature recording devices. It was further required that all milk served in public eating houses be served in the original containers.

Following the passage of this ordinance, there was instituted a thorough clean-up of all producing farms, requiring the construction of milk houses and barns with cement floors, grooming of cows, cleaning of corrals, cooling of milk and many other details of importance.

The educational campaign begun by the department has been carried on up to the present time, having as its ultimate objective the elimination from the Denver market of all unpasteurized milk, or milk which could in any way be questioned as to its cleanliness and safety. Under this program, the majority of dairymen were induced to install pasteurizers. The herds and equipment and methods for handling milk have been brought to a reasonable standard, so that at the present time the average bacterial count of the milk sold in Denver has dropped from 305,000 to 15,000 per cubic centimeter. By January, 1930, all but twenty-three dairies were supplying pasteurized milk, comprising less than 5 per cent of Denver's milk supply. At the present time practically all of these diaries are equipped for pasteurization, although all of them are not as yet distributing pasteurized milk.

The necessity for pasteurization in the city's milk is borne out not only by the reports from the government, the experience of other cities, and the findings of prominent investigators throughout the country, but by our own experience as well. It will be recalled that in 1926 an epidemic of typhoid fever occurred in Denver in which forty-one cases were reported. All of these cases were traced to a raw milk dairy. The organism of contagious abortion (known in man as undulant fever) has been repeatedly demonstrated in the raw milk supply in Denver. Tests of herds supplying this milk have proven the presence of reactors in these herds. There should be no question of the necessity for pasteurization in the mind of every doctor familiar with the diseases which may be transmitted through milk.

The hands of the milker are another source from which milk may receive infection. The milker may have a disease and not know it—or he may be a carrier.

Typhoid fever, septic sore throat, diphtheria, scarlet fever, dysentery, tuberculosis and contagious abortion are spread in this way. Pasteurization is the only thorough preventive.

The United States Public Health Service has records of forty-seven raw-milk-borne epidemics in the United States for 1928. The number of cases resulting from these epidemics in the United States was 2,196; the number of deaths, 120. For undulent fever alone, the United States Public Health Service reports 670 cases, traceable to raw milk. All of these milk-borne epidemics could have been prevented by proper pasteurization.

What some recognized authorities have to say concerning pasteurization is quoted in the following paragraphs:

Dr. Theobald Smith of the Rockefeller Institute says that "specific disease germs, one and all, may be destroyed by the average pasteurization."

Bulletin No. 56 of the U. S. Hygienic Laboratory, entitled "Milk and Its Relation to Public Health," says "Pasteurization saves lives and prevents sickness."

Dr. M. J. Rosenau, professor of preventive medicine and hygiene at Harvard, says "Heating milk has the great advantage of preventing much sickness and saving many lives." He further states that "There is no authentic record of any milk-borne epidemic caused by properly pasteurized milk."

Dr. E. V. McCollum, John Hopkins University, says: "Every city should enforce the pasteurization of its milk supply. The reasons for this are clear and are accepted by all who are in a position as a result of scientific training to understand the underlying principles. I have for years insisted that every city should have its milk pasteurized and under conditions where the city health officer can effectively supervise the process."

Dr. Thomas D. Wood, Columbia University, says: "At the present time, on the basis of the evidence within my knowledge, I believe that compulsory pasteurization for all milk is a desirable safeguard for the public health."

Dr. Charles J. Hastings, Medical Officer of Health, Toronto, Canada, says: "It is inconceivable how any thinking person will, in the light of modern knowledge, jeopardize his own reputation by advancing arguments against the scientific pasciteurization of milk. In my judgment, any municipality failing to safeguard its milk supply by means of scientific pasteurization is, in the light of modern knowledge, guilty of criminal negligence."

The following statements are taken from a pamphlet issued by the Dairy Products Institute of America entitled "Pasteurization."

"Dr. Charles H. Mayo, world-famous physician and surgeon of Rochester, Minn., has declared in an authorized interview that, in his judgment, pasteurization is the best of all the known treatments for the nation's milk supply, and, in the final analysis, for all of its dairy products.

"The nation's milk constitutes a problem that is the source of no little concern to our health authorities particularly," said Dr. Mayo, "and to our medical practitioners generally."

"Properly handled," he added, "the situation is not a particularly difficult one to control neglected, it may quickly become a menace involving countless lives."

"After having studied for many years the problem of safe milk," Dr. Mayo has officially declared, "I am of the opinion that pasteurization is the only known treatment which adequately serves the purpose for which it was intended, namely, that of destroying germ cells without materially reducing the food properties. I do not contend that pasteurization will make unclean milk clean. I do contend, however, and can prove by the records that pasteurization will and does make unsafe milk safe."

Dr. Mayo asserts that pasteurization, which is accomplished at 145 degrees of heat over a period of not less than thirty minutes, destroys germs. "Organisms so delicate," he stated, "That it is quite unnecessary to heat the milk at a higher temperature.

"With proper care thenceforth," Dr. Mayo continued, "No more germs can make their entry into the milk, and the consumer will obtain an absolutely safe and nutritious product."

The comment of Dr. Mayo relative to epidemics and the part which the milk supply generally plays in them them is interesting.

"Even though we are able through rigid and constant supervision of our herds and their surroundings to offer the public reasonable protection against impure milk, epidemics have not been prevented," he said. "This fact indirectly supports what I have previously stated as my belief, that pasteurization, while not making unclean milk clean, will make unsafe milk safe.

"In case of an epidemic it has been demonstrated that pasteurization properly performed will destroy the germs responsible for the disease and its spread and consequently restore the community to normal, healthful conditions. Often we have found hundreds made ill by the impure supply from one unhealthy cow. It is comparatively simple to trace trouble of that sort to a herd which is infected, but to trace it to a single animal is a much more difficult matter.

"But whether the contamination originates from one or a dozen cows, pasteurization is an absolute insurance against a continuance of the outbreak, and furthermore a complete and certain check."

Questioned as to the often-repeated statement that pasteurized milk is not the best for babies on the theory that its food value has been reduced, Dr. Mayo declared that "babies, fed raw and pasteurized milk, show a slight average difference in the net daily gain in weight during the feeding period when given orange or tomato juice. The slight difference might truthfully be said to be in favor of the milk that has undergone the pasteurization treatment."

Dr. Mayo expressed the opinion that "it is within the province of the Board of Health of any community to insure good and safe milk.

"The protection of the public can be insured by pasteurization," he said. "It is the only safe way."

MEDICAL SOCIETIES

This department of Colorado Medicine is set aside for reports of recent meetings, announcements of future meetings and accounts of other important activities of the county and district societies, composing the Colorado State Medical society. Every meeting of every local society should be reported. If your society is not represented, see that your secretary reports the next one, or that some other member is appointed to the task. Other societies want to know what your society is doing.

El Paso County Medical Society

The mid-summer clinic of the El Paso County Medical Society was held at the Union Printers' Home, Wednesday, August 6, at 8 p. m. The clinic was given by members of the staff of the Printers' Home, and included the following:

The Causes of Sudden Death, Based on a Study of Fifty Cases; by Dr. A. Lee Briskman.

Polyneuritis as the Result of the Ingestion of Jamaica Ginger, Two Cases; by Dr. Frank T. Stevens.

Differential Diagnosis in Aneurism and Mold Infections of the Lung; by Dr. C. O. Giese.

A buffet luncheon was served by the staff following the program.

W, A. CAMPBELL, JR.,
Secretary.

Northwestern Colorado Medical Society

A dinner meeting of the Northwestern Colorado Medical Society was held at the Billings Hotel at Oak Creek, Tuesday evening, August 5. Wives of the doctors joined the members at dinner and later held a separate meeting of the auxiliary. Dr. W. W. Sloan presided.

* * *

Otero County Medical Society

Dr. B. Franklin Blotz delivered the principal address before the August meeting of the Otero County Medical Society held at the Harvey House in La Junta. Dr. Blotz talked informally on his recent tour of European clinics.

THE COLORADO OPHTHALMOLOGICAL SOCIETY

March 15, 1930

DR. E. R. NEEPER, PRESIDING

Excessive tenotomy

Dr. W. H. Crisp, showed a woman, thirty-two ytars of age, who a good many years ago had had a tenotomy done on the right eye on account of convergent strabismus. There was a complete loss of rotation. She was now unable to move the right eye toward the left beyond the median line. The movements were normal in all other respects. Her refractive correction was R— + 1.00 sph. + 1.25 cyl. ax. 75° L— + 1.25 sph. + 0.75 cyl. ax. 105°. The corrected vision of the right eye was 20/20, that of the left 20/48, and yet, apparently as the result of limitation of motion in the right eye, the patient fixed with the left eye and had no use of the right eye. Should an attempt be made to find the right internal rectus and to advance it as a first step toward obtaining parallelism of the two eyes?

Discussion: Dr. Edward Jackson's impression was that, in as much as this case was definitely a muscle fault, it would be advisable to operate. He suggested that it might be difficult to find the cut end of the internal rectus. Therefore by using a portion of the superior and inferior rectus and transplanting them to the point of insertion of the internal rectus, the action of the latter muscle would thereby be supplied. This operation lends itself to better advantage where the internus is involved rather than the externus. He advised the use of a large conjunctival incision parallel to the cornea, about 12 mm. in length. He stressed the point that there has been no general appreciation or adoption of the use of a portion of the superior and inferior recti, in these cases of extreme convergence.

Dr. C. E. Walker, believed that the usefulness of this operation is not appreciated. He stated that even if the cut muscle is not found that the remaining connective tissue atrophy will be found and this may be reattached. He cautioned as to not promising a perfect result in this case and that an additional operation might be needed.

Retino blastoma

Dr. P. Thyeson showed R. Q., aged two years. The child was brought to the out-patient department of the Colorado General Hospital by his parents who had noticed a peculiar yellow reflex in the left pupil. This had been noticed last fall but had not alarmed the parents until recently, when the back of the eye seemed visible through the pupil.

A history was given of a severe cold at the age of seven months, accompanied by a fever of 102° lasting from three to four days, and followed by a flaccid paralysis of the left shoulder muscles.

The condition was diagnosed shortly afterward as anterior poliomyelitis by the neurologic clinic. An additional history of a recent severe pneumonia was given, with good recovery. The Wassermann was negative.

Discussion: Dr. Frank R. Spencer was in favor of immediate enucleation.

Dr. Edward Jackson suggested that in a case of this type pseudo-glioma should be kept in mind. However he did not feel that this was a pseudo-glioma and advised immediate enucleation. While the patient was under the anesthetic he advised a careful examination of the other eye.

Healed trachoma

Dr. C. A. Ringle exhibited a patient, who was led into his office twenty-four years ago. He was then eighteen years of age. He had pain, photophobia and drooping of the lids. On everting the lids the conjunctiva rolled out in a large mass of spawn like granulation with the characteristic sago grain follicles of trachoma. There was a dense pannus over both corneae. An expression operation with ring forceps was performed, first making free incisions into the thickened tissues of the conjunctival sack.

The after treatment was carried on most assiduously. It consisted of grattage and the application of 2 per cent silver nitrate solution principally: and while the pannus persisted, the use of atropin. In three months the treatment was discontinued. At the present time the vision was: O. D.-12.00 1.00 ax. 30° = 20/40. O. S.-11.00-1.00 ax. 180° = 20/70. A 2° prism, base in, was added. Eversion of the lids showed a minimum of scarring of the conjunctiva. Slight remains of the pannus persisted.

Discussion: Dr. Edward Jackson expressed his appreciation of the value of the exhibition of such a case.

Dr. C. E. Walker believed that the case must have been one of follicular conjunctivitis and not trachoma.

Dr. P. Thygeson stated that Dr. Richards of the Indian Service believed that trachoma can be resolved completely without scarring.

Dr. Frank Spencer reported a case he has had under supervision for twenty-five years. There has been practically complete recovery with very little scarring. Dr. Spencer was of the opinion that such cases as those under discussion must be mild for such an end result.

Dr. George Strader has seen many cases with very little or no scarring. He attributed such results to cases diagnosed early and upon whom proper treatment had been carried out.

Dr. Ringle in closing, stated that he appreciated the discussion and that he had presented the case to provoke such a controversy as to whether or not cases of trachoma can be resolved without leaving any clinical evidences. He re-emphasized that this patient had a definite pannus and that the patient was operated at the correct stage of the disease, that is, before any scarring occurred and before the follicles had become encysted. Dr. Ringle said that he literally wore out the folds of the conjunctiva in stripping them. He attributed the perfect clinical result to the thoroughness of the treatment, the youth of the patient, and the length of time that had elapsed which had sufficed for complete healing and restitution of tissue.

Intraocular foreign body

Drs. William C. and William M. Bane showed Mr. W. R. W., aged twenty-six, who was injured on February 24, 1930. A piece of steel struck his left eye, as he was striking metal with a hammer. When seen by a doctor the next morning a little rust was cleaned out of the eye. He had the impression that a foreign body had not penetrated the eye ball.

When first examined by Drs. Bane on February 26, 1930, the eye ball was conjested and there was edema of the conjunctiva, a small linear scar was seen in the upper nasal portion of the cornea.

The x-ray report was negative for an intraocular foreign body. A subconjunctival injection of cyanide of mercury with atropin was given.

On February 27, 1930, the eye showed considerable reaction, the pupil was only half dilated, and an exudate was present on the anterior capsule. The next day the pupil was wider, there was noted an opacity of the anterior capsule of the lens in the lower nasal quadrant. It was grayish white, and at first did not suggest trauma. There was some pain in the eye for several days and it was kept under atropin.

On March 3, 1930, the eye was examined by Dr. Strickler with the corneal microscope, and it was his opinion that the wound in the cornea extended through into the anterior chamber. It was thought advisable to have another x-ray. It was now reported that a foreign body measuring 1x1.5 mm. had been localized in the region of the opacity in the anterior lens capsule.

On March 4, 1930, the small particle of steel was first drawn into the anterior chamber and then removed after an incision had been made into the anterior chamber. A pair of scissors was inserted and the magnet applied. A part of the iris became entangled and had to be excised.

The vision was 5/60 and has not changed since the time of the injury. Two more injections of cyanide have been given. The opacity in the lens is gradually increasing. There is involvement of the posterior capsule of the lens. The tension is below normal.

Discussion: Dr. William H. Crisp mentioned a case, where he had applied the magnet directly to the keratome which had been used to make the incision, and thereby removed a foreign body resting on the iris surface without loss of aqueous.

Dr. William M. Bane, in closing, explained that he did not attempt replacement of the iris, which had protruded at the time of operation because the patient was exceedingly unruly.

Herpes zoster ophthalmicus

Dr. H. Lucic showed a man, forty-seven years of age. His eye trouble started about November 1, 1928. He first noticed a soreness on the left side of his forehead. Three days later vesicles developed over the left forehead and scalp. A diagnosis of herpes zoster was made. A few days later a soreness of the left eye developed at which time the cornea presented several small superficial central vesicles. The forehead cleared up rapidly under treatment. The vesicles disappeared from the cornea within a few days, leaving an irregular superficial scar. On November 11, 1928, the vision was O. S. 20/50 with correction. He returned to work on November 19, 1928, some congestion of the globe remained. Within a few weeks after returning to work the patient complained of pain, photobia and scratching. However he continued to work because these symptoms were not severe. During all of this time he was treated at the office.

On August 21, 1929, he had a submucons resection done with complete relief of symptoms for about a month, when all of the symptoms reappeared. At this time the cornea was involved to a greater extent and the condition slowly became worse with involvement of the iris. On December 11, the patient was hospitalized for five days

and placed on vigorous treatment consisting of large doses of sodium salicylate (orally) two milk injections intramuscularly, and atropin and heat to the eye.

Under this treatment all congestion of the globe disappeared, the pupil dilated well and the cornea became much clearer. Improvement continued for a few weeks but the eye soon regressed to the present condition. The blood Wassermann was negative and tuberculin tests were negative.

Discussion: Dr William H Crisp reported a very severe case of herpes zoster ophthalmicus in a man of fifty-two years The right frontal and temporal region, and the right half of the nose, had been involved in a primary eruption, which was accompanied by large blisters There had, in the course of the following several weeks been a great deal of severe neuralgia, with anesthesia of the skin over the affected area. The right eye had shown in addition to some superficial disturbance of the cornea, a distinct uveitis, the pupil having become bound down in spite of the use of mydriatics. There were a large number of good-sized brown pigment deposits on Descemet's membrane.

Familial retinal detachment

Dr. William C. Bane showed a man, forty-nine years of age. He came under observation in 1920. The vision of the right eye at that time with —20.00 sphere was 5/60; the pupil was 2 mm. wide and active, the fundus was fairly normal. The left eye was blind and had been cataractous since childhood. It was enuclated because of pain in May, 1920.

In January, 1930, he again consulted because of failing vision in his remaining eye over a period of a year. Four days previously "a scum of a purplish green color," came over his vision. An examination of the fundus revealed a detached retina from above downward so that but little of the fundus came into view.

The family history of this case was exceedingly interesting in that two brothers and one sister of the patient were afflicted with detached retina.

An older brother lost his left eye and the remaining eye suffered a detachment of the retina when he was thirty-five years old. He is now fifty-one years old and blind.

His sister had a detachment of the retina in both eyes at about thirty years of age and is now fiftyone years ol dand blind.

A younger brother developed a detachment of the retinae in 1912. He is now fifty-one years of age and "has enough vision to get around."

Dr. Bane has verified the above family history as stated by the patient. The two brothers and the sister had all consulted the late Dr. Gifford, correspondence with his office and substantiated the family history as outlined.

Discussion: Dr. E. R. Neeper asked if it were a common thing for retinal detachment to occur in several members of the same family.

Dr. Edward Jackson stated that he had never seen retinal detachment occur in several members of the same family, and it was his opinion that the influence of heredity in as far as this condition is concerned nas not been definitely established.

DONALD H. O'ROURKE,
Secretary.

WOMAN'S AUXILIARY

PROGRAM

TUESDAY, SEPTEMBER 9

9:00 A. M.—Registration, Congress Hotel.

11:00 A. M.—Meeting of the State Executive Board Woman's City Federated Club House.

3:00 P. M.—Reception and Program Tea; Woman's City Federated Club House.

8:00 P. M.—Address: "The Doctor in Politics," by Dr. Hubert Work; Centennial High School Auditorium.

WEDNESDAY, SEPTEMBER 10

6:00 A. M.—Informal Trap Shoot Breakfast at Pueblo Gun Club, for Doctors and Families (Sport Clothes).

10:00 A.M.—Annual Meeting, State Auxiliary; Election of Officers; Woman's City Federated Club House.

1:00 P. M.—Annual Subscription Luncheon; Minnequa Club.

6:30 P. M.—Informal Reception for President; Pueblo Golf Club.

7:00 P. M.—Harvest Home Supper; Pueblo Golf Club.

11:00 A. M.—Meeting of New and Old State Executive Boards; Woman's Federated Club House.

THURSDAY, SEPTEMBER 11

All Day—At Congress Hotel: Optional city trips including Colorado State Hospital, Colorado Fuel and Iron Company, Nuckoll's Packing Company plant, National Broom and Manufacturing Company, and other industries.

Pueblo hostesses anticipate a large attendance of the State Auxiliary members and promise a memorable good time to all visitors.

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE AND HOSPITALS

OCCUPATIONAL THERAPY AT THE COLORADO PSYCHOPATHIC HOSPITAL

Occupational therapy is any activity, mental or physical, definitely prescribed and administered for the distinct purpose of contributing to or hastening recovery from disease or injury. Occupational therapy is a method of healing by means of occupation. Therapy means treatment for a definite end, not haphazard business or amusement. Occupational therapy is not a hit or miss affair of keeping the patient busy, but a definite medical therapeutic for specific results, the needs being sometimes mental, sometimes physical, and sometimes social. In the old days patients filled jobs waiting to be done. Today the work is chosen to suit the need of the patient.

The aim of the department is to effect an attitude of interest in the patient, interest in personal appearance and in environment, and an

awakened interest in the problems of life when they leave the hospital. The success attending this form of therapy in any hospital is dependent on the quality and personality and abilities of the aids and the close cooperation of the medical staff and nurses.

The patients are taught to make useful as well as beautiful articles that are salable.

On March 16, 1925, the occupational therapy department was opened in the Colorado Psychopathic Hospital with one trained occupational therapist and one volunteer worker. The first two hour classes were started in the shop with seven women and ten men. The attendance of both classes has more than doubled and at present we have a daily attendance of twenty women and fifteen men. There has been a steady increase in the last two years. We have treated 841 patients. During the last two years there has been a force of two instructors. The total number of articles made in this length of time is 928.

The following subjects are taught to both men and women in the shop:

Rug Weaving, Blanket Weaving, Swedish Weaving, Oriental Rug Weaving, Hooked Rug Weaving, Braid Weave Rugs, Knitting, Crocheting, Repairing and Refinishing of Furniture, Basketry (reed and raffia), Elementary Book Binding, Embroidery, String Work, Toy Making, Metal Work, Caneseating, Plain Sewing, Clay Modeling, Leather Work, Batik, Tie and Dye Work, Stencilling, Wood Work, Bead Work.

Simple problems that require no tools are taught on the wards and beautiful articles are made of waste materials, such as hand-woven burlap rugs and table covers, silk rag rugs, and cotton covers are hemmed by bed patients, dyed and embroidered for the bureaus on the wards. The first group of women made and embroidered and dyed the curtains for the shop as well as several for the wards, and the men made waste baskets, hampers, reed trays, and wove rugs for the wards.

The Colorado Psychopathic Hospital has a bed capacity of eighty. At present 75 per cent of the patients work in the shop. The average stay of a patient is from six weeks to two months, a few remain longer. It is the duty of the occupational therapy department to meet these changing groups and plan a daily program. The occupational therapist must have some clinical insight into the patients varied interests, and she should be able to interest the patient upon his or her arrival in the hospital. She plans to meet the new patients on the ward, and if possible should be introduced to the patients by the doctor in order to impress the patient with the advantages and privileges of occupational therapy. It also presents work as part of treatment. It permits the patient to work and makes the work seem important. Each patient is an individual problem. The patient is then introduced to the occupational therapy department and a definite prescription from the doctor is filed in the department. The prescription generally gives the diagnosis of the patient as well as the mental traits and characteristics and former occupation. This prescription also shows the varied reactions of the patient towards work, and is carefully checked daily by the therapist. This record is kept on file in the department and is of great value to the medical staff as well as the occupational therapy department in showing the progress made by the patient.

The work accomplished in the department is determined very largely by the type of the patient. We make a simple article that can be finished quickly or else something that can be passed from one worker to another without too much detriment. On the whole the work should be planned as a personal project for the patient or an article that the patient may enjoy making for the hospital rather than an article of market value. Most of these articles are sold to the patients for the cost of the materials. The remaining articles are exhibited and sold.

Occupational therapy shortens the patient's stay in the hospital and is of economic value in that it improves the general morale of the ward and lessens the responsibility of the nurse.

Occupational therapy is of great value in healing potential mental cases in many ways. It arouses and develops attention, it creates initiative, it substitutes encouragement for discouragement. It restores functions to disabled joints and muscles. It has normalizing influences. It is natural for man to be occupied. It conserves work habits and prevents habits of chronic invalidism. It fits a man to take up a job when he leaves the hospital after a period of convalescence or idleness.

Color and design are the basis of all handicraft. An intelligent, well trained conception of both subjects is essential to the occupational therapist.

When an occupational therapist organizes a department, she should observe carefully the surroundings in the hospital and plan in every way to make them, both in the shop and the wards, most attractive to the patients. Such insight will at once stimulate the patients' interest. It will also appeal to the various individual tastes. For example, from the view point of the interior decorator, there are varied problems that may be planned both to interest and occupy all types of patients. The painting of the walls could be of soft, warm and plain colors, as gold, yellow or buff. This might interest a dementia praecox, or an alcoholic case who had previously been a painter, since this type of patient spends long periods of time in the shop. A woman suffering from mental disorder might, if previously interested in her home, enjoy the making of curtains and the creating of color schemes through the process of dying.

Color acts in three ways, as a stimulant, a sedative and a recuperative. Color may be selected for two reasons, first for decorative effects; second, the mental reaction which follows from the choice and arrangement of colors. William O. Ludlow, architect of New York, says that color not only brings pleasurable sensations but something that ministers to mental health and bodily well being. Color produces distinct mental reactions and we know of course that mental reactions are immediately reflected in the bodily conditions. These reactions are brought about partly by the association of ideas, different colors have been assigned significance.

The director of occupational therapy lectures every seven weeks to the relatives of the patients. Articles made by the patients are exhibited during the lecture. The occupational therapist explains the meaning of occupational therapy and the benefits that various patients have derived from this type of treatment.

The director of occupational therapy lectures four times a year to the student nurses. The nurses also give fourteen hours in the shop to observe the methods of the department as well as to learn some of the crafts. At these lectures the history and purpose of occupational therapy is explained. At least five cases are reviewed and then the nurses visit a class in the shop illustrating these particular cases: For example:

They will see a depressed patient doing a stimulating piece of work such as bright silk weaving; they will see an excitable or hypomanic patient doing a relaxing problem, such as plain weaving; feeble (senile) patients winding yarn or doing plain sewing hard work given to psychoneurotic cases such as bed spread weaving, large wood problems and warping looms. Problems involving concentration, such as basketry are given to a manic case. Monotonous work, such as knitting is given to an elated case. Problems to create interest such as colored toys, blanket weaving, and painting are demonstrated. Swedish weaving is excellent for dementia praecox and rug weaving for paresis cases. Some patients tire easily, and concentration is hard to acquire. Large, simple problems of short duration are given to irritable patients and weaving to noisy patients.

Illustrative case

Case No. 1. Female, school teacher, 26 years old, single, has been three months in the occupational therapy department.

Complaint: Psychoneurotic—family difficulties due to brother's blindness. Inferiority Complex. Seclusiveness. Depressed.

Occupational Therapy Department: Patient made six different articles while working on the ward and in the shop, and the last month she was here she was taught nine different crafts and became most interested and skilled in making models which she used in a summer camp where she taught as soon as she was discharged from the hospital. Patient was much more cheerful and showed an unusual willingness to be sociable when she left.

It is often with a distinct feeling of reassurance that the patient finds himself in a cheerful room filled with interesting things, and away from the hospital atmosphere. Group work is an excellent incentive to the depressed cases. The relatives also become interested when they see those in whom they are concerned, occupied.

The director of occupational therapy gave lectures last year to the Faculty Women's Club and church organizations and also lectures demonstrating handicrafts in the home from the standpoint of occupational therapy at the Denver Art Musium.

Exhibits and sales were held at the Colorado State Medical Meeting in Colorado Springs, September 11-15, 1928. At this particular exhibit charts were shown representing the types of patients treated, the work accomplished by the patients, and the patients' progress in the department is explained by the physicians' brief history and that of the occupational therapist. For the last four years, at Christmas time, an exhibit and sale has been held at the Denver Art Museum, 1300 Logan street, Denver. We consider that we owe a great deal of gratitude to Miss Ann Evans, director of the Denver Art Museum, for her personal interest in our department. We have realized our largest receipts from these sales. The Y. W. C. A. has invited us twice to exhibit our work for educational purposes. A bargain sale was held at the hospital last December.

One of the great advantages of our shop is the fact that it is located on the main floor, making it easily accessible to all types of patients, the lame and the wheel chair cases. It is a great working center of interest to visiting physicians from all parts of the country.

We hope to increase our exhibits and sales in order to extend the work of the department and at the same time acquaint the average layman and outside communities with the real value of occupational therapy in a psychopathic hospital. In order to accomplish this end we hope to enlarge our shop and increase the activities of the patients.

We consider our occupational therapy shop a training school and we hope the patients who work with us will go out with a better mental attitude and greater capacity for the problems of life.

MABEL A. M. BOND.

Obituary

Dr. John Nicholl Vroom

Dr. John Nicholl Vroom died on August 2. For forty years he had practiced medicine in Denver ably, honorably, and with a spirit constantly cheerful. In his youth he thought himself suited for a career in music. As his father was able and willing to support any reasonable ambition in his son, he went to Brooklyn to study the piano with the distinguished organist and composer, Dudley Buck. He became in time an accomplished pianist.

But ripening years began to temper the exuberance of his enthusiasm for music. It was time to decide whether he would become a concert artist or a teacher and he felt no strong attraction for either occupation. He was then living in Denver where a young medical school was running in hot rivalry with the school at Boulder. So far as he personally was concerned Vroom settled the controversy by entering as a student the Medical Department of the University of Denver.

Over an undertaking establishment on Larimer street was the rudely improvised dissecting room of the medical school. There young Vroom, brought up in an atmosphere of delicate art, dissected ill-preserved bodies that strongly challenged the sense of smell. But his spirit was unbroken. When more important matters failed to detain professors he heard lectures by such men as J. C. Davis, on Surgery; Bancroft, on Fractures; Arnold Stedman, on Obstetrics; E. J. A. Rogers, on Physiology and Joseph Addison Sewall on Chemistry.

As Vroom felt no financial restraint and as it was not necessary for him to claim his meals at the family table, he left the Denver University to complete his medical education at Rush Medical College. After graduation he returned to Denver where he lived and worked until his death.

He was seen more frequently among artists than among doctors. He liked the study of modern languages and was pleased to sit at luncheon with those who spoke French with Parisian purity. He knew entertainers of all kinds. When an assemblage of medical men needed diverting entertainment Vroom could mobilize talent on short notice and in ample quantity.

He never wrote on medical subjects and seldom attended medical meetings. He never married. With him club life replaced family life. He was always a pleasant and sometimes, though not too often, a convivial companion. His name, still standing on the windows of his office in the Barth Block, gives us a sense of loss and of sadness. C. S. E.

WYOMING SECTION

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EDITORIAL NOTES AND COMMENT

A HAIR CUT FOR FOOD CRANKS

It is a difficult thing for the average scientifically trained medical man to fully realize the feeling of a layman when he reads in the popular weekly journals the columns of health advice given so freely by the so-called food and health experts.

It has been the writer's privilege to listen to discussions by non-medical persons on the subjects of proper foods, clothing, habits, and it is truly amusing to see how very seriously many people take as truths the opinions of these so-called experts. Quacks like McFadden are quoted in good faith. His advice is followed in their daily lives of ignorance by many readers. Does he not publish a great health journal? Look at his wonderful muscles—in his retouched pictures. That ought to be enough to convince any one that he is right. But does it? It is surprising how many fall for his bunkum. They pay for his magazines because of the pictures. That source of income enables him to publish other journals which are all along the same misleading lines.

Use a little common sense and do not expect draft horses to develop from race horse stock. It cannot be done! No amount of dieting within health limits will make a Percheron look like a Kentucky thoroughbred. A race horse is a race horse and needs the food and exercise of a race horse, and a draft horse, if true to form, pulls and does not run. So it is with people—a man working out of doors, say in a lumber camp, needs plenty of energy producing foods like sugars, meat, bread, beans and highly concentrated foods. The office worker can not handle such heavy foods simply by reason of his lack of out-door exercise.

Adjust your food to your requirements and above all take plenty of liquids, and after you think you have taken plenty of liquids—take some more. Then you won't need to consult quacks as to what you should eat or drink. You will not need their advice. Cut out fake health magazines and use common sense. E. E. W.

SWEETWATER COUNTY REORGANIZES

On Thursday night, July 10, a meeting was held in Rock Springs attended by nine members of the medical profession. Several other members had signified their intention to be present, but were called out of town.

The following officers were elected:

President: Dr. K. E. Krueger of Reliance, Wyo.

First Vice President: Dr. E. F. Scheidegger of Green River.

Second Vice President: Dr. C. O. Larsen of Superior.

Secretary and Treasurer: Dr. J. G. Wanner of Rock Springs.

The three councilers elected were:

Dr. T. H. Roe, Dr. O. Chambers and Dr. Joseph Whalen.

The above announcement will be received with pleasure by the members of the Wyoming State Medical Society, and our best wishes are extended to the officers and members of this society.

Our educational importance

A senior medical student writes to us from Louisville, Kentucky, that the symposium on acidosis in our issue of last November has done more than any professors or texts in making the subject clear. It is plain that no progressive medical school can afford to omit Colorado Medicine from its library.

THE ELIMINATION OF UNSUSPECTED MALIGNANCIES IN MAKING A DIAGNOSIS*

DRS. NEWCOMER, NEWCOMER AND CONYERS
DENVER

The careful consideration of an unsuspected malignancy in making a diagnosis is becoming more necessary for the following reasons:

1. The increasing prevalence of malignancies.

2. The necessity for the early discovery of cancer if any hope is to be entertained for the cure of the patient.

3. Most cases of malignancy are implanted upon other chronic diseases.

4. Secondary malignancies are often confused with other diseases, and the primary growth may or may not have been discovered.

5. Unnecessary operations and treatments can be avoided if the presence and extent of metastases are recognized.

The main facts that militate against early discovery of primary cancer are:

(1) Most cancers are deep seated and insidious in their onset and do not exhibit early symptoms. Pain, loss of weight, anemia, hemorrhage, obstruction and loss of function are generally advanced symptoms.

(2) Cancers in women occur with the greatest frequency in the uterus and breast. These organs are the seat of so many chronic disorders that the symptoms due to a beginning malignancy often are undiscovered or unrecognized. Many women conceal a lump in the breast for fear of a mutilating operation. Oftentimes the physician whom she consults advises waiting, especially if she is under the so-called "cancer age." Women who have borne children and have a torn cervix with its accompanying leucorrhea do not consult a physician when there is a change in the character of the discharge. They are often sensitive about being examined and wait until they are beyond help. Too often the physician treats the matter of an ulcer or erosion of the cervix too lightly and does not make careful and repeated examinations for a possible malignancy.

(3) Many patients with chronic disorders of the gastro-intestinal tract do not notice a change in their train of symptoms when a malignancy is beginning and seek help only when the condition is well advanced. In chronic disorders of the prostate, men often wait until metastases have involved the bones and then consult their physician for relief of their supposed rheumatism or neuralgia.

(4) Influenza or other infectious processes may antedate the beginning of the malignancy, and patients often attribute their symptoms to after effects of these diseases and neglect to consult a physician.

(5) The more or less acute onset in a few cases also confuses the diagnosis.

(6) Physicians often do not recognize the fact that cancer is found more often in younger people than formerly and fail to consider the possibility of cancer in persons under the so-called "cancer age."

Joseph Colt Bloodgood[1] states: "Cancer as a cause of death is on the increase and has gradually risen from the twentieth place nine years ago to the second place in 1929."

The Mortality Statistics of 1927[2] gives the number of deaths from cancers and other malignant tumors as 103,578, about 8.4 per cent of all deaths.

Mortality Statistics of 1927, 28th Annual Report Part 1

The death rate per 100,000 estimated population:

From all causes	1,141.9
Circulatory	221.9
Tuberculosis in all forms	80.8
Cancer and other malignant tumors	95.6
Cancer of the stomach and liver	34
Cancer of the stomach	22.2
Cancer of the peritoneum, intestines, and rectum	14
Cancer of the female genital organs	13.8
Cancer of the uterus	12.1
Cancer of the liver and gall bladder	9.2
Cancer of the breast	8.8
Cancer of the prostate	3.5
Cancer of the bladder	3
Cancer of the pancreas	2.2
Cancer of the esophagus	1.6

Thus 8.4 per cent of all deaths are due to cancer in some form. Approximately one in

*Presented by Dr. Elizabeth Newcomer at the Wyoming State Medical Society Meeting, Sheridan, Wyoming, July 14, 1930.

each twelve persons dies from cancer. When you eliminate the deaths in infancy and childhood and those due to infectious diseases the percentage of deaths in adults due to cancer is appalling.

General body conditions suggesting the possibility of cancer

Anemia, hemorrhage;

Loss of weight, emaciation, weakness and cachexia;

Obstruction, vomiting and loss of function;

Pain.

Anemia is one of the most prominent symptoms and may be due to hemorrhage, to absorption of hemolytic agents from ulcerating and infected surfaces, to toxic substances elaborated by the tumor itself, or to disturbances of nutrition. Benign tumors have little or no effect on the blood and the early effect of malignant tumors is slight. Decrease in the hemoglobin content of the blood exceeds the decrease in the number of red cells, producing thereby a lowered color index. Leucocytosis may or may not be present.

All cases of hemorrhage from any source or grave anemias should be thoroughly investigated to eliminate the possibility of cancer. One must rule out tuberculosis, simple ulcers of the duodenum or stomach, ulcers or varices of the esophagus, cirrhosis of the liver, syphilis, nephritis, parasites, splenic and blood disorders, menorrhagia and hemorrhoids.

Loss of weight, cachexia and its associated weakness and emaciation usually occur late in cancer but may be fairly early symptoms. One must eliminate cancer as the cause of loss of weight, but it should be borne in mind that other conditions may be the cause of it, such as, tuberculosis, diabetes, toxic goitre, benign stricture of the esophagus, dieting, low protein or food intake, and vomiting from any cause, as, pregnancy, toxemia, pyloric obstruction and gall bladder disease.

Possible malignancy must be considered in all cases of obstruction in the alimentary canal or urinary system. However, benign obstruction does occur in cardiospasm, benign stricture of the esophagus, pyloric stenosis resulting from contractions due to adhesions from chronic duodenal ulcer or gall bladder disease. Vomiting from any cause, especially gall bladder diseases, may simulate obstruction.

Pain is due to involvement of the nerves in the tumor area but unfortunately is usually a late symptom and in many cases may never be present.

We will consider briefly the different organs in which cancer is most prevalent.

Organic sites of cancer

Stomach: Let us consider cancer of the stomach first and consider it carefully, as cancer occurs more often in the stomach than in any other organ, constituting about 40 per cent of all cancers. The death rate from cancer of the stomach is 22.2 per 100,000 estimated population. The average age of occurrence is 61.2 years, but it is occurring more often than formerly in patients under forty years. It occurs more often in males than in females.

Cancer is especially apt to occur in persons who have been subject to chronic abdominal diseases. They may think it is a manifestation of their chronic disease and neglect to consult a physician until it is fairly well advanced. On the other hand, it is extremely difficult to differentiate from other chronic abdominal diseases because of its insidious onset, although the onset and course are definite. In the early stage there is generally a latent or silent period of three or four months during which time few symptoms are present.

The chronic upper abdominal diseases giving origin to gastrointestinal symptoms occur in about the following relative frequency: Gall bladder 6, ulcer of the cap 5, ulcer of the stomach 1. Three-fourths of all gastric lesions and 95 per cent of tumors of the stomach are malignant.

The symptoms in a large percentage of diseases of the gall bladder, duodenal ulcer, gastric ulcer and gastric cancer are often so overlapping and confusing as to be hopeless. Vomiting, gastric retention, loss of weight, the presence of blood in the vomitus or stool, anemia and pain may be present in any one

of the four and in many other diseases. The presence or absence of hydrochloric acid occurs in several other conditions and is not pathognomonic of stomach cancer.

Vomiting is rare in either gastric or duodenal ulcer except in the presence of obstruction. It is very common in gall bladder disease, in duodenal stasis and in benign obstructions from adhesions in the region of the pylorus. It is very common in pyloric cancer due to obstruction and also in cancer of the esophagus and pylorospasm.

Gastric retention is present in some cases of duodenal ulcer, gastric ulcer, cholecystitis, duodenal stasis from adhesions and adhesions from the gall bladder as well as in cancer of the stomach. It is by no means always present in cancer of the stomach.

Loss of weight may be due to obstruction or to vomiting and may be found in either malignant or benign diseases of the upper abdominal region as well as in other systemic diseases.

Bleeding occurs in a heavy percentage of gastric and duodenal ulcers and is often quite profuse. It is more often oozing in character in gastric cancer. Hematemesis may occur in cirrhosis of the liver, diseases of the spleen, chronic jaundice, appendicitis, etc.

Anemia: In the presence of hematemesis and tarry stools, one must exclude cancer or ulcer of the digestive tract. However, nephritis, syphilis, parasites, splenic and blood diseases, menorrhagia, fibroids and hemorrhoids often cause severe anemia.

Pain is often absent in early cancer of the stomach but late in the disease may become unbearable. It is generally increased by eating and relieved by vomiting.

Anorexia is an early and persistent symptom in cancer of the stomach. A palpable tumor is a late sign.

Stomach findings: In a statistical study of the diagnostic value of anacidity performed at the Mayo Clinic,[3] 492 cases were examined. Anacidity occurred in:

Gastric cancer	96 cases
Cholecystitis	89 cases
Functional nervous disorders	87 cases
Pernicious anemia	57 cases

Achlorhydria was found in one-half of the cases in 551 cancers of the stomach.

Achlorhydria is generally present in pernicious anemia, advanced chronic gastritis, arteriosclerosis and achylia gastrica. If cancer is grafted on ulcer, hydrochloric acid may be present early in the disease but generally disappears as the cancer advances.

Cancer may attack ulcer of the stomach, and cancer of the stomach may undergo ulceration. Either may be accompanied by bleeding. Either may cause obstruction, vomiting and emaciation. Pain may occur in either, being generally early in ulcer and late in cancer. Food and soda relief, which is prompt and complete in ulcer of the cap, is uncertain in gastric ulcer and does not generally occur in gastric cancer. Retention of food and vomiting may occur in ulcer of the cap, gall bladder pathology, adhesions from the gall bladder or duodenal ulcer, and in gastric cancer, particularly of the pyloric area. Retention of food and vomiting are more often associated with gall bladder pathology than any other cause.

Ewing states that three-fifths of all gastric cancers occur in the pyloric region, one-fifth along the lesser curvature and cardia, and one-fifth along the greater curvature.

The Mayo Clinic[4] reports that 68 per cent of their gastric ulcers were associated with carcinoma.

Ewing[5] states that anything above 2 to 3 per cent indicates too high an average for the carcinomatous transformation of ulcer. Bamberger reports that after 1025 gastroenterostomies for ulcer observed for some time, cancer developed in 22 cases, 2.1 per cent. Among 152 cases in which ulcer was treated by excision, cancer developed in 1.9 per cent. These results are quite incompatable with a frequent origin of cancer from peptic ulcer. Ulcer of the duodenal cap is five times as frequent as gastric ulcer, yet cancer of the cap is practically unknown.

Because of the overlapping symptomatology, all cases of chronic digestive disorders in persons 35 years old or over should be under suspicion of being malignant, particularly if there is an increase in the severity or a change in the symptoms.

Cancer of the stomach can be positively diagnosed by means of the x-ray in 95 per cent of the cases, if the examination is performed by a trained man. Space will not permit the discussion of the x-ray examination here.

It is difficult to discuss cancer of the stomach without considering cancer of the liver and gall bladder at the same time, because of their close anatomical, physiological and functional associations, and because of the confusion of symptoms due to diseases of the stomach and gall bladder, such as nausea, vomiting, pain, loss of weight, etc.

Cancer of the gall bladder is secondary to cholelithiasis over 95 per cent of the time. Consequently it is preceded by the symptoms of gall stones and cholecystitis which may vary from slight indigestion, flatulence, belching and vomiting to characteristic gall stone colic. A change in the severity or duration of the pain in known gall bladder disease is strongly suggestive of malignancy.

Cancer of the liver is seldom primary but is generally secondary to cancer of the gall bladder, stomach, breast and other organs.

Esophagus: A careful history is necessary. Many patients do not realize that they have difficulty in swallowing. They may tell you that they have been dieting and taking liquids more than solid food. One may be able to elicit the fact that there is difficulty or pain in swallowing or regurgitation of food. There may be a localized feeling of pressure along the esophagus or an unexplained pain in the epigastrium or thorax. One must differentiate from benign stricture from any cause, diverticulitis and cardiospasm. Hemorrhage may result from benign ulcer or varices of the esophagus. Outside pressure from an aneurysm, mediastinal glands, tumors of the thyroid or thymus may also cause difficulty in swallowing. Loss of weight is common in cancer of the esophagus but may be as bad in cardiospasm. Obstruction can be determined by fluoroscopic examination with both a liquid and solid opaque meal. In question of doubt in regard to its nature, esophagoscopy must be performed.

Small intestine: Cancer of the small bowel is seldom seen except in the region of the ampulla of Vater and is generally associated with cancer of the head of the pancreas.

Pancreas: Cancer of the pancreas furnishes about 2 per cent of all cancer cases. It generally begins in the head, and first makes its presence known when it involves the common bile duct causing an enlargement of the gall bladder and a painless jaundice. However, many cases of gall stones in the common duct producing jaundice are free from pain.

Colon: Cancer of the colon and rectum occur with about equal frequency. Polyposis and diverticulitis often precede cancer of the colon. The diagnosis is generally made in a routine gastrointestinal examination. A barium enema should always be a routine part of such an examination.

X-ray examination of the colon: 90 per cent of colonic cancers can be shown with the x-ray. A filling defect can be seen and obstruction to the enema at this point, especially if the condition is advanced. One may be able to feel a mass at the point of the filling defect. In complete obstruction the bowel proximal to the area may be much dilated. One must be sure that any irregularities in the colon as shown on the x-ray film are not due to spasm, haustration, external or internal pressure or gas in the bowel. If the amount of the enema is too small it may resemble a filling defect. One must differentiate from ulcerative colitis, which usually shows a smooth uniform narrowing if extensive. Diverticulitis may show a filling defect with perhaps a palpable mass and a few projecting filled diverticula. Cancer occurs in about 20 per cent of diverticulitis. Tuberculosis may resemble cancer, and one should look for tuberculosis elsewhere in the body. Adhesions usually do not cause obstruction or deformity.

If pus and blood are found in the stool or the patient complains of hemorrhoids or any abnormality in the rectum, he should not be treated without first making a direct examination of the rectum to determine if cancer is present.

Uterus: Cancers of the uterus are first in frequency in malignancies found in women.

About 10 per cent are found in the body of the uterus and 90 per cent in the cervix. A chronic endocervitis precedes cancer of the cervix in the great majority of the cases, also cervical tear and erosion. It is more commonly found from the ages of forty to sixty, but may occur in the twenties.

Great care should be exercised in the elimination of early cancer in female diseases. Irregular or excessive menstruation, delayed or irregular menstruation at the menopause, recurrence of flow after complete cessation, increased leucorrhea or watery discharge or ulceration of the cervix call for careful and repeated local examinations. Pain in the region of the bladder, rectum or back, or painful intercourse are late symptoms. A flow of blood from the uterus, even though a very slight amount, in a woman well past the climacteric is nearly always due to cancer.

Cervical cancers on account of the rich lymphatic supply are particularly virulent, metastasize early and must be diagnosed early if any hope for a cure of the patient is to be entertained. Radium and x-ray treatment offer the best chance of cure. Cancers of the fundus can usually be cured by operation as they do not metastasize early. The results are equally good with radiation.

A small percentage of uterine fibroids become malignant; 0.5 to 3 per cent.

Ovaries: Cancers of the ovaries are so often secondary that a careful search of the entire body must be made for a possible primary source.

Breast: The death rate from cancer of the breast is 8.8 per 100,000.

The following points are of especial interest in cancer of the breast. (Ewing.[6])

(1) 82 to 84 per cent of all mammary tumors are carcinomas.

(2) The average age is 45 to 60 years.

(3) There is a history of trauma in 5 to 12.5 per cent.

(4) There is normal lactation in only 8 per cent.

(5) Stagnation of milk is an important factor.

(6) Previous exudative inflammation of the breast or nipple is found in 15 per cent.

(7) The most important element in the tissue predisposition is chronic productive mastitis.

(8) Most mammary cancers arise in breasts which are the seat of chronic mastitis.

(9) True Paget's disease begins in the nipple and is always malignant.

Mammary cancers in women of the childbearing period are particularly virulent. Any growth or nodule in the breast should be considered malignant unless proven otherwise. The symptoms vary with the type of the tumor. In some types the appearance of the tumor is preceded by an intermittent serous or bloody discharge from the nipple. In women with fat breasts it may be hard to outline a definite growth. Fibrocarcinoma following chronic mastitis constitutes most of the cases in which errors of diagnosis so often occur. The breast is first hard and indurated, no definite nodule can be felt and precious time is wasted before the condition is suspected. The growth increases, the skin becomes dimpled, the nipple retracted and the axillary nodes enlarge. Mammary cancer is particularly apt to metastasize and is the cause of most bone metastases in women. The breast and lymphatic drainage area should be radiated before removal, if possible, and followed by thorough radiation six weeks after the first radiation.

Prostate: Ewing[7] states: "In the prostate the chief condition predisposing to cancer is chronic prostatitis, usually with hypertrophy."

"A markedly indurated prostate in a man over 50 years of age producing urinary retention is highly suspicious of carcinoma, especially if it is hard and not very large. When with the indurated prostate, there is induration along the seminal vesicles, with pain and hematuria, the presence of carcinoma is practically certain." (Young.[8])

Urinary tract: Malignant tumors of the kidney are usually highly virulent and are often well advanced before characteristic symptoms are produced or their presence

recognized. Cystoscopic examination of the bladder should be performed in all cases of abnormal function of the urinary tract. Pyelograms are often necessary when the kidney is involved. Blood in the urine should never be considered lightly and a definite cause for the hemorrhage must be established in all cases.

Lungs and mediastinum: Atypical physical signs in examination of the chest should lead one to suspect cancer. A roentgenogram should be taken of all chest conditions. All other methods of diagnosis of lung and mediastinal conditions are exceedingly crude. Hodgkin's disease is quite common and generally invades the mediastinum. Pleural effusions are common in malignancies. The mediastinal glands are usually invaded from cancers in the adjacent organs.

Metastases

With but few exceptions secondary tumors (metastases) are seen only in malignant growths. Sometimes the primary growth is undiscovered or its presence concealed. In proven or in suspicious cases of malignancy careful and repeated check must be made for metastases. A careful examination must be made to determine the presence or extent of metastases before operation. Rheumatic or neuralgic pains must be considered due to secondary maligancies in the presence of a primary growth and roentgenograms must be taken of the painful areas to eliminate a possible undiscovered malignancy in these cases.

According to Handley[9] cancer spreads by means of permeation through the lymphatics of the deep fascia to the neighboring glands, spreading upward to the skin and downward into the abdominal organs and to the bones at the points where the deep fascia dips inward as at the falciform ligament of the liver, or where it becomes attached to the bones as to the vertebrae, humerus and great trochanter of the femur.

In most cases the regional glands are involved by lymphatic emboli of cancer cells from the primary growth and direct extension of the primary growth may involve the neighboring organs. Carcinoma in a few instances may be spread by the blood stream, while sarcoma usually spreads through the blood stream.

Some carcinomas metastasize early and others late, the metastases varying with the different organs and tissues and the types of the tumor. All the tissues of the body may be invaded if the patient lives long enough.

According to Ewing:[10] "In not a few cases of advanced cancer the thoracic duct is invaded, an event which commonly leads to wide spread dissemination by lymph and blood stream. One of the striking results of invasion of the thoracic duct is the appearance of enlarged glands in the supraclavicular region." The left is most commonly involved. It is common in metastases from abdominal, gastric, uterine, pancreatic, testicular, prostatic and adrenal cancers. It is a late symptom.

Skeletal metastases are very common in cancer of the prostate. Similar processes are observed in cancers of the breast, stomach, gall bladder and thyroid. The early and frequent occurrences and extensive distribution belong chiefly to cancer of the prostate. Kauffman[11] calculated that about 70 per cent of prostatic carcinomas cause skeletal metastases as compared with 37 per cent for thyroid carcinoma, and 14 per cent for mammary cancer.

Cancer of the prostate is the commonest cause of bone metastases in men, usually involving the bones of the pelvis and lumbar spine first. Therefore films of these bones must always be taken where cancer is suspected. The characteristic appearance of the involved bones is an osteoplastic "chalky" appearance and unless one is familiar with this characteristic he may think the film is defective. All the bones of the body may be involved. In addition the pelvic and lower abdominal lymph nodes are commonly involved and may cause bilateral pain in the hips and thighs due to nerve pressure. Occasionally the lungs are involved and nodules may occur in the skin.

Cancer of the breast is the most common cause of bone metastases in women. Early involvement of the axillary nodes by lymphatic emboli usually occurs. The walls of

the chest underlying the breast and also the ribs may become involved by direct extension and the breast may become fixed. The organs involved by metastases, according to Ewing, occur in about the following order: pleura, lungs, liver, bones, brain, ovary, opposite breast, dura mater, kidneys and retroperitoneal nodes, and uterus.

All the bones of the body may be involved if the patient lives long enough. Routine x-ray examination of the bones, especially if the patient complains of rheumatic or neuralgic pains, should be made, and anteroposterior and lateral films of the thoracic and lumbar spine should be taken in all cases.

As a general rule cancers above the clavicle do not metastasize below the clavicle before the primary growth has been discovered.

Cancer of the esophagus involves surrounding tissues before metastases are seen. Cancers of the upper third of the esophagus usually metastasize first above the diaphragm; of the middle third, both above and below the diaphragm; and of the lower third below the diaphragm.

The metastases of **gastric cancer** vary with the type of the tumor. The neighboring lymph nodes are first invaded after which the growths spread through the lymphatics in all directions. Supraclavicular enlargement of the lymph nodes especially of the left side is seen more often in gastric cancer than in cancer of any other organ and should be searched for in all cases of suspected gastric cancer. In addition, if the x-ray shows a cancer of the stomach, look for metastatic nodules in the left axilla, in the inguinal and saphenous regions and for enlarged nodes at the bottom of the pelvis, by rectal or vaginal examination. Subcutaneous nodules may be found at or near the umbilicus. Nodules in any of these areas are contraindications to operation.

In cancer of the colon the adjacent viscera and parieties may be involved by direct extension. Distant metastases are usually limited to the liver and this organ should first be examined through the incision before resecting the colon.

Malignant tumors of the kidney commonly metastasize to the lungs, and a chest film should always be taken before operating. The cancer may extend to the adjacent structures by direct invasion. There may be metastases to the bones, chiefly the ribs, spine, skull, scapula and long bones. The abdominal visceral organs may be involved.

Cancers of the female genital tract: Cancers of the external genitals and the outer half of the vagina metastasize to the inguinal lymph nodes and may cause nodules of the perineum and lower anterior abdominal wall. Cancers of the cervix and upper half of the vagina metastasize along the base of the broad ligament to the lymph nodes at the bifurcation of the common iliac vessels but rarely beyond the pelvis. Metastases of the fundus are commonly to the upper part of the abdomen and the inguinal lymph nodes. Metastases from ovarian cancer are usually confined to the pelvis but may also occur in the abdomen from the rupture of a malignant cyst.

Cancer of the peritoneum is generally secondary to cancer of the abdominal organs, especially of ovarian adenocarcinoma. It is a late involvement in cancer of the breast.

Malignant tumors of the testis may extend through the lymphatic vessels accompanying the spermatic veins and cause a retroperitoneal mass of the upper abdomen. Metastases may extend to the lungs, liver, brain and the kidneys.

Cancer of the thyroid: metastases occur in the vast majority of cancers of the thyroid and in the following order: lungs, bones, liver, kidneys, pleura and brain. The bones are involved, only less frequently than with mammary and prostatic cancer, and in the following order: skull, sternum, spine, ribs, humerus, femur and pelvis. The metastatic growths appear at the epiphysis

REFERENCES

[1]Bloodgood, Joseph Colt: Jn. Chemical Education, Vol. 7, No. 5, May, 1930.

[2]Mortality Statistics 1927. Twenty-eighth Annual Report, Part 1.

[3]Collected Papers of the Mayo Clinic and the Mayo Foundation; a Statistical Study of the Diagnostic Value of Anacidity. Vol. 18; page 67.

[4]Ewing, James; Neoplastic Diseases, Third Edition.

[5]Handley; Cancer of the Breast.

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EDWARD S. DELEHANTY
President-Elect of the Colorado State Medical Society

EDITORIAL NOTES AND COMMENT

EDWARD DELEHANTY

The choice of the House of Delegates this year for president-elect was deservedly popular. During thirty-five years of active medical service in this state, Dr. Delehanty has endeared himself to many and made no discoverable foe.

He was born and received his early education in the city of Geneseo, New York. Before he came to Colorado in the year 1890 he had already qualified himself to pratice in the profession of education, having graduated from the Geneseo State Normal School in the previous year. His first position in this state was as principal of the North Golden School. But medicine was calling with an urgent voice and, before he had amassed savings sufficient for a comfortable graduate life, he entered the medical school of the University of Colorado.

While working his way through medical school, Dr. Delehanty came under the spell of its dean, one of the greatest neurologists of that or indeed of any time, Dr. J. T. Eskridge. To this coincidence must be attributed the bent of his future career. Graduating in 1895, he succeeded, by competitive examination, in securing an internship at the Denver General Hospital, where he subsequently became the chief resident medical officer.

For a time Dr. Delehanty served his medical apprenticeship as a general practitioner, being associated with the large practice of the late Dr. P. V. Carlin. But the interest in neurology and psychiatry that he had acquired from his distinguished teacher was ever clamoring for his whole attention. As soon as opportunity afforded he devoted himself to it in post-graduate study, first in the Vanderbilt clinic and later in Vienna, calling upon England on the way.

During the last quarter century Dr. Delehanty has been visiting physician to the wards for nervous diseases in the Denver General Hospital. During much of this time he has also been associated with the department of neurology of the state medical school, at first as lecturer and now as assistant professor. St. Joseph's Hospital claims him as president of its medical staff. He is a member of the American Medical Association, of the Central Neuro-Psychiatric Society, of the Clinical and Pathological Society, of the Denver Medical Club and of the Colorado Neurological Society.

Throughout the Rocky Mountain Region our president-elect is known perhaps even more widely among members of the legal profession than among our own members. Few indeed are the medico-legal cases of importance in which he does not appear as an expert witness. He has been for many years a member of the lunacy commission of Denver. Have we not good reason to hope that under the administration of one who so well understands our foibles as well as the vagaries of the legal profession and of the legislature, our state society may look forward to a period of sane and solid progress?

THE PRESIDENTIAL ADDRESS

We take great pleasure in presenting to our readers the presidential address to the sixtieth meeting of our state medical society. It goes well below the surface and challenges action as well as thought. The contention that fee-splitting, though it may have led to abuses, is essentially an attempt to right a fundamental injustice and that the mere suppression of fee-splitting leaves that fundamental injustice exactly where it was, is a contention that can hardly be disputed. The president's suggestion for solving that basic injustice is one that is, we believe, quite in line with modern educational thought and which for our part we heartily approve.

It is the business of our profession to raise its standards and to mark excellence of attainment as plainly as may be with special diplomas for each special branch of study. When it comes to the regulation of medical practice by the state, we must beware, however, that we do not raise the cry "L'état c'est moi!"

The law which decides who shall sit upon the State Board of Medical Examiners is not made by the State Medical Society. It represents the judgment and determination of the elected representatives of the democracy of Colorado. Considering the ignorance of medical science and the primitive prejudices that are still widespread in this democracy ought we not to be thankful that it is not a board of chiropractors and Christian Scientists that decides for us who may or may not exercise the healing art in this state? The Public Policy Committee of the State Medical Society has of course done its best to see that the public health should be protected as far as was politically possible at the time that the act was passed. We may or may not think that we could have done better; we are quite sure that they might have done a great deal worse. It is certain that the act is a compromise. The ability to compromise is one of the hall marks of sanity. Without compromise no form of ordered government would be possible.

Our responsibility does not end—indeed it scarcely has begun—with the efforts of our Public Policy Committee in the year 1915. If we want better acts in the future we must begin at the beginning and educate both the legislators and the public by whom they are elected. There ought to be, besides a Public Policy Committee, a Committee on Public Instruction of the State Medical Society. But we need not wait for its appointment. We have daily and hourly opportunities to teach our neighbors, our patients and our other friends. If these are insufficient, the Woman's Auxiliary will be glad to find us more.

PRACTICAL EUGENICS

The rights of those to be born are greater than ours, and our most solemn trust.[1]

Great minds, like that of Sir Francis Galton, have been concerned to win from our knowledge of heredity some benefit for humankind. Lesser minds with sympathetic zeal have sometimes sought by hasty and ill-considered legislation to make practical the eugenic ideal, and have succeeded only in bringing the ideal into disrepute. They have thought that it is as simple to breed men as horses, forgetting that the desirable traits of a horse are fewer and more easily agreed upon than are the ideal traits of a man. One writer[2] has suggested "an official eugenic classification of the whole population":

> By the use of Binet-Simon tests, and by medical examination and, so far as possible, the examination of pedigrees, police records, etc., every individual, before reaching marriageable age, should be classified, from A1 to C3.

What, may we ask, is the grade of a bootlegger, with an I.Q. of 120, a slight left lateral scoliosis and having in his family two Methodist bishops and an uncle who died of cancer?

Despite the fanciful pandects of the zealots, we must insist that there really is a place for practical statesmanship in eugenics. Such a position is held, we believe, by the British Committee for Legalising Eugenic Sterilization whose report[3] has recently been issued, and by certain of the American states particularly the state of California, upon whose experience the British Committee have frankly based their proposals. They ask for a law with three clauses which would facilitate and regularize the voluntary sterilization of the following three classes: (1) mental defectives, (2) the recovered insane, (3) persons suffering from other grave transmissable diseases and defects.

There is no present agreement as to the rate at which mental defect can be eliminated from the population. Most geneticists are inclined to believe that, even if all defectives were immediately sterilised, the effect on the next generation would be quite small. Yet before us lie uncounted centuries of time. The task of raising our genetic standard of life, however great, must have a beginning. Why not now?

To all who are interested in sterilization as

[1]Curle, J. H.: To-day and To-morrow: The testing Period of the White Races. London: Methuen. Page 71.

[2]Armstrong, C. W.: The Survival of the Unfittest. London: C. W. Daniel Co. Page 78.

[3]Obtainable from the Eugenics Society, 20 Grosvenors Gardens, London S. W. 1 England. Price 6d.

a means to this end we commend the recent publication of the Human Betterment Foundation, written by E. S. Gosney and Paul Poponoe[4]. Herein are summarised the experience and researches resulting from 6,000 operations in California during the last ten years. It contains the information already made public in eighteen different contributions to the scientific literature. It will prove a valuable source book to practical eugenists who are seeking to promote similar sanitary programmes in other states.

REPOSITORY INJECTIONS OF INSULIN

The parenteral administration of certain therapeutic agents, with their consequent rapid assimilation, often entails definite disadvantages. In the administration of insulin by hypodermic injection the patient is subjected to the risk of hypoglycemia on the one hand and the need of frequent dosage on the other. Theoretically both of these disadvantages can be overcome if it is possible to control the rate of assimilation of the drug after it has been injected. Dr. C. B. Strauch,[1] working with Dr. H. Bernhardt of the First Medical Clinic of the University of Berlin, has suggested the use of oil emulsions of watery solutions or (in the case of insulin) of suspensions of the purified powder in oil. In France, Chabanier, Lobo-Onell and Lélu had been working for some years on the same problem and had already demonstrated the advantage of preparations that are not too highly purified over the purer and therefore most rapidly assimilated solutions of insulin in cases that experienced hypoglycemia after administration. On publication of Dr. Strauch's work they set themselves to prepare an oily suspension that would meet the following requirements: (1) it must be stable, a requirement to which Dr. Strauch himself had pointed but which he had not been able to achieve; (2) it must liquify at a temperature slightly higher than that of the body; (3) it must be well tolerated by the subcutaneous tissue; (4) it must sensibly delay the assimilation of the drug; (5) assimilation must still proceed with regularity. After experimenting with various quantitative adjustments of the materials suggested by Strauch and Bernhardt, these French workers are now satisfied that the above requirements have been met and are able to report[2] an interesting clinical study of certain cases in which the repository injections have been used with marked success. In brief they find that by this method they are able to reduce the injections to one each day or every two days in cases that had needed two or three daily injections of the aqueous solution. Since it is possible to concentrate as many as 400 units of insulin in a single c. c. of the oily suspension the volume of the doses employed has been conveniently small. Hypoglycemia has been avoided and better results in the control of sugar metabolism obtained with the oily suspension than with considerably larger doses (in insulin units) of the aqueous solution. The authors believe that their method is indicated in the more severe and rapidly progressive cases as well as in cases subject to hypoglycemia. They add that it is just as necessary to control the dosage conscientiously by blood and urine analysis as in any other administration of insulin. The exact number of cases on which their conclusions are based is not stated. It is evident that their experience extends beyond the two cases that are reported in detail, nevertheless we must defer final judgment on the value of the new technique until a significantly large record of successes can be assembled.

[4]Gosney, E. S., and Poponoe, P.: Sterilization for Human Betterment. New York: The Macmillan Co. 1930. Pp. 201. Price, $2.00.

[1]Strauch, Clauss Burkart: Repository Injections—How to Obtain Lasting Effects with Injected Water-Soluble Medicaments such as Insulin and Epinephrine, J. A. M. A. 92:1177 (April 6), 1929. See also Leyton, O.: The Lancet, 1:756, 1929.

[2]Chabanier, H; Lobo-Onell, C, and Lélu, E.: Etude Clinique d'une Préparation D'insuline en Suspension huileuse, Bul. de l'Acad. de Méd. 104: 158 (Aug. 4), 1930.

SOME PROBLEMS IN MEDICAL ECONOMICS*

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At the meeting last year of the International Post-Graduate Assembly, Dr. Haggard, the President-elect, said—"The members of this assembly will not be afflicted with that most terrible of all speeches, a Presidential Address."

You are not so fortunate in this society, the custom has become too firmly established for me to change it.

The practice of surgery dates back to the beginning of history. Joseph commanded his physicians to embalm him, 1700 B. C., Hippocrates opened the skull for compression and reduced shoulder dislocations.

In 1224, Emperor Frederick issued an edict requiring all who practiced surgery to take a special examination. A candidate was to have studied medicine and surgery for five years, and be an assistant to a surgeon for one year. He was to treat the poor for nothing, visit his patients twice a day and once at night, and avoid collusions with apothecaries and irregulars. One surgeon charged the nobility two hundred dollars for a certain operation, with a life annuity of twenty-five dollars a year. At this time the value of money was about twenty times what it is now, so the high cost of surgery is not new.

In 1731, the Academy of Surgery was founded in Paris, and in 1743, Louis XV passed a decree that no one could be a master in surgery unless he was a master in the Arts. This was the French surgeons' "Declaration of Independence." Henceforth he was a lettered man, prepared for his life work by special education.

From the nature of things, the surgeon in those days had to be a man of iron nerve and much dexterity. Then a "conscious, suffering, squirming, crying patient," usually tied down, was operated quickly, almost recklessly. Amputating knives were made long and sharp, so that all the flesh of the limb could be cut at one stroke, and woe to the surgeon who did not do his work right the first time. The surgeon who could amputate a leg in forty seconds, could demand and did deserve, much greater remuneration than the man who kept his patient suffering an hour or more.

Since the discovery of anesthesia in 1846, and the work of Lister in 1868, the urgent need of speed is not so great, and while any successful surgeon must have skill and dexterity, the necessity of speed has given way to the much greater requirement of experience and good judgment. This latter can only be acquired by working with, or under the direction of some of the master surgeons of the world.

Up to the middle of the last century, the art of medicine was almost entirely empirical. Following the discovery of Pasteur and Koch, that many of the common diseases of man are caused by parasites, either vegetable or animal, medicine entered a scientific period. The course of study, instead of being two years of six months each, has extended to four years of nine months with a curriculum so crowded, that the schools are having much difficulty in covering the work in the four years. Only the most brilliant students are able to complete the course satisfactorily. New methods and instruments of precision are so multiplied, that no one man is able to master more than a few of them. One has only to mention radiography and blood chemistry, as two of a great number of procedures requiring special training and ability. Diagnosis has become a well developed art, and the specialist in internal medicine, or general practioner, if you will, in my opinion requires as much equipment, judgment, experience and ability as the average surgeon. Often the man who works out the diagnosis of a case of gall bladder disease, shows more skill and ability than the one who takes the gall bladder out.

Is the laborer worthy of his hire? The public has been educated to pay the surgeon well and the internist very moderately. This is, I believe, a holdover from the pre-anesthetic

*President's address delivered at the sixtieth annual meeting of the Colorado State Medical Society at Pueblo, September 9-11, 1930.

days, when the surgeon required the characteristics which I have enumerated above. As the specialty of surgery, or rather the specialists in surgery, became more widely distributed, the general practitioner looked at them with wonder and envy. Some of the more practical took on a more economic point of view, and thought that as long as he, the general practitioner, made the diagnosis, took much of the responsibility of recommending surgery, and had the after care of the patient, he should have a part of the operating fee, and so the division of fees, or as it is more harshly called, fee splitting, came into existence. For a time this partially solved the problem, and in some of the smaller cities worked to the benefit of both the medical profession and the patient. One man in a town would do most of the operating, and the other physicians would give the anesthetic or assist, with what seemed an equable remuneration to all. The benefits of group practice were enjoyed by the patient without the regular business affiliations of the medical men employed. No patient was operated without examination by at least two men, and unnecessary operations were not more numerous than they are today. Jealousy and rivalry were at a low ebb, and every one seemed satisfied. Evils, however, crept in. As in all professions, some unscrupulous men would insist on unnecessary operations being done by surgeons to whom they referred their cases, and some weak, but well meaning surgeons, would be influenced by the wishes of the man referring the case rather than by the needs of the patient. The size of the commission given, rather than the skill of the surgeon, was perhaps too often the determining factor as to whom the case was referred. In all instances, however, there were two men consulted before the operation was done. The patient had the advantage of being operated on by a man who was doing a large number of operations, and who at least had the knowledge which a wide experience could give him.

In May, 1913, the American College of Surgeons was founded in Chicago, a city in which the division of fees and the buying and selling of patients was said to have been rather common, and was said to have been practiced even by some of the elect. In the organization of the College of Surgeons, the statement is made: "That the College is concerned fundamentally with matters of character and of training, with betterment of hospitals, and teaching facilities in medical schools and hospitals, with laws which relate to medical practice and privileges, with unselfish protection of the public from incompetent medical service." Article 7 states that in making application for Fellowship, a candidate shall sign a declaration, which reads as follows: "Upon my honor as a gentleman, I hereby declare that I will not practice the division of fees, either directly or indirectly, in any manner what-so-ever." In the meaning of this declaration the signer agrees, that in order to obviate any semblance of the division of fees, he will as a general principle of practice, not collect fees for others referring patients to him; not permit other doctors to collect fees for him; nor make joint fees with physicians or surgeons referring patients to him, for operation or consultation.

In 1917, the state of Colorado passed a law entitled—"Division of fees by licensed practitioners unlawful." In this law it is stated that if any person holding a license to practice medicine, osteopathy, chiropractic, midwifery, or chiropody, shall divide any fee or compensation with another person for sending or recommending, or being instrumental in any manner in causing such a person to employ such physician; or if any person holding a license to practice medicine shall make a lump or gross charge without itemizing the amount charged for the services rendered by each physician or surgeon whose services are included in such gross charge, such physician shall be deemed guilty of misdemeanor, and on conviction, shall be punished by a fine of not less than $25.00 or more than $250.00, or by imprisonment in a County jail for not more than thirty days, or both. The State Board of Medical Examiners is hereby authorized and empowered to revoke the license of any physician or surgeon, who violates any of the foregoing provisions of the statute.

At the Portland session of the American Medical Association in 1929, Section 3 of

Article 6 in the Code of Ethics, was changed to read: "When a patient is referred from one physician to another for consultation or treatment, whether the physician in charge accompanies the patient or not, it is unethical to give or receive a commission, by whatever term it may be called, under any guise or pretext whatever."

These various efforts on the part of the State and different medical bodies has to a great degree done away with open and, I believe, also with the secret division of fees. Physicians are making individual charges and sending their own statements. If a common statement is sent, the amount belonging to each one is itemized.

On the other hand, there is not so much referred operating work being done as formerly, at least in the smaller towns. Rather than send his patient to a specialist and relinquish all the compensation, and at times the later practice in that family, the individual practitioner is doing his own operating. As long as a ten minute tonsil operation pays as much as an all night obstetrics case, every man is going to remove tonsils. If removing an appendix in a well equipped hospital brings as much remuneration as a six weeks case of typhoid fever, self-protection demands that the average practitioner remove appendices. From tonsils and appendices, it is only a short step to thyroid and gall bladder.

In one small city with the statistics of which I am familiar, twelve years ago there were not more than three men doing major surgery. In 1929, in the same city, twenty-eight different men operated, and nineteen of these men were doing major operations. This, I believe, is not peculiar to any one community, but is merely an indication of the trend of the times. If one were to talk with a class of freshmen entering our universities, I believe nine out of ten of them would tell one in confidence that they expect to make a specialty of surgery.

To a greater degree also than formerly, the patient is taking matters into his own hands. With such a diversity of operators, the patient is choosing his own specialists. Instead of taking the advice of his family physician as to whom he should consult, he is taking the advice of his friends in the laity, sometimes with benefit to himself, but more often to his sorrow. Has this change resulted entirely to the benefit of the patient?

With this regime I have no quarrel. If the general practitioner prepares himself by reading and graduate study, so that he is competent to do the thing he undertakes, and if he is able to make a definite diagnosis and operates only upon those cases upon which he is capable of operating, there can be no valid objection to his conduct. Preventive medicine and the development of surgery has made the practice of medicine in a much larger degree surgical, than it was formerly. Typhoid fever, diphtheria, and other epidemics are a thing of the past. The public is being educated in the work of prevention, and also to take care of minor ailments. To receive an adequate income, the average practitioner must receive some of his income from surgical cases, or there must be a readjustment in the fee schedules, and in the mind of the public, as to the amount of compensation deserved in the various branches of medical practice.

If there be any operations performed deliberately, in which the indications are not present, which I very much doubt, the temptations of the unscrupulous man are twice as great when he receives all the fee, as when he received only half, and the diagnosis need be only confirmed by himself.

It is argued by some that the question of how much the traffic will bear from a financial point of view, is at times kept too much in the foreground, and that the excuse "if I don't operate, someone else will," at times changes a doubtful case into an urgent one. Quantity and speed rather than quality, has been said to be an American failing, and many aspiring operators act as if the only requisites necessary to make them competent surgeons is to have a large number of operations to their credit.

I earnestly believe that there should be some readjustment made, making smaller the difference in compensation between the so-called medical and surgical specialties so that the internist, or general practitioner, could be paid somewhat more in proportion to his ability and desserts. This would do away to a large

extent with the temptation to divide fees or to sell patients. As long as whisky sells for five dollars a quart and there is a market for it, there will be bootleggers. As long as the present difference in fees between medical and surgical practice exists, there will be either a division of fees, or the general practitioner will for his own protection, include surgery in his work.

How can some of these adjustments be brought about so that the graduate in medicine may occupy the position to which he is entitled, and receive the remuneration which his long course of study should give him? In what manner may the public be educated so that it may choose a physician intelligently? At the present time there is no law or custom which prevents any doctor, of medicine or otherwise, from going before the public as being specially qualified to treat any of the many diseases of mankind. Not long ago one of my former patients came into my office from a neighboring city to consult me about herself. In the course of the conversation, she remarked that she came to Fort Collins to bring her twelve year old daughter to consult a specialist about a serious eye disease. I asked her whom she had consulted, and she named an advertising osteopath of quite ordinary ability. I asked her whether he were a specialist, and she answered, "Why, yes, he says so right on his door." At present there is no way for the average layman to know who is qualified and who is not. With our present methods of giving some of the irregulars the same license to practice that we give to graduates in medicine, there is nothing to prevent almost anyone from setting himself up as an expert to treat iritis or glaucoma, or to take charge of the most complicated surgical diseases. With the cults advertising their supposed ability as in the above instance, there is nothing to protect the capable, conscientious specialist in his effort to make a success in his echosen line of work.

To me, one of the greatest needs of the medical profession and of the public, in Colorado at present, is that there should be a change in the personnel of the Board of Medical Examiners. By this I do not presume to cast any reflections on the present incumbents, but I do believe that it should be composed only of graduates in regular medicine. If the board must be appointed by the Governor, let it be from a list submitted to him by the State Medical Society, chosen because of their education and ability, rather than any political affiliations. The public may be to some extent protected by having a common Board. It certainly is degrading to the medical profession to be compelled to submit to an examination by a Board, the president of which may be an osteopath. The American College of Surgeons will not accept a Hospital as filling the minimum requirements for standardization, if irregulars are permitted to use the Hospital for their patients, and yet in Colorado we accept them on our Board of Medical Examiners as competent and ethical to tell us whether we are qualified to practice medicine.

There is not a university of school of higher learning in the United States which has a Chair of Osteopathy, and yet we, for political reasons, ask the graduate in regular medicine applying for a license to practice, to go before a Board made up partly of irregulars and if he pass, they give him a license, no different from the one given to the irregular, and the irregular does not hesitate to inform the public of this fact. In the official list sent out by the Colorado State Board of Medical Examiners this year, no distinction is made between the graduate in regular medicine and some of the cults, the names being given indiscriminately under the heading—"Licensed to Practice Medicine in Colorado." How many of you thrilled with pride as you read that list?

Instead of bringing the level of the work of the irregulars up to that of the medical profession, I sometimes think it brings the standing of the medical profession down to their level, particularly in the estimation of the public.

This is not a criticism of any other form of practice, but I believe we should insist upon our right to be recognized for what we are.

If we believe at all in the traditions of regular medicine, let the new men coming

into the State, come in through a qualified, educated, ethical, medical Board, a license from which would signify that they had at least started correctly, and were graduates from a regular Medical College.

It is not impossible that in the last few years, we have been emphasizing the science of medicine and forgetting the art. The patient is interested in the diagnosis of his case, but he is much more interested in being cured of his disease. He goes to his physician, not so much for the examination, as to be relieved of his pain and disability. He is not so much interested in whether the physician is versed in the basic sciences as he is in knowing that the man he consults has at his command, the best knowledge in the world as to what should be done for his particular disease.

The best diagnostician is of no benefit whatever to the public if he follow up his diagnosis of diphtheria, with an adjustment of the spine and nothing else, or a case of malaria by absent treatment. If we do not insist that the men practicing the healing art, are educated in the art of healing, then the whole structure of medical science, as far as the public is concerned, falls to the ground. Medicine resolves itself into a pure science, fine intellectually, but of no use in relieving human suffering.

Do not understand me to be in any way excusing the lack of diagnosis, or as belittling the value of scientific tests and processes in finding out the physical condition of the patient. Any form of treatment is blind without an accurate diagnosis, but the diagnosis is only half, and is of no value to the patient if it stop there. The man with a perforating duodenal ulcer needs more than the information that he has one, and nothing less than a knowledge of the proper method of treatment and its use will save the man's life. The point I am trying to make is when we advocate or agree to a common Board, we are in the public mind, in a measure standing sponsor for the actions and ability of all who pass this Board, and are ostensibly agreeing that one method of treatment is as good as another. I believe much of the indifference of the public toward the medical profession is the result to a great extent of our tolerance of the cults and their followers. The title "Doctor" has lost its significance, and has come to mean almost anything. Let us insist that we be known as Doctors of Medicine, and that we be examined and licensed as Doctors of Medicine, by a Board composed of our peers.

I believe also that there should be a Board of Examiners, created by the American Medical Association, made up of men competent to give an intelligent examination in the various specialties. A certificate from this Board would mean that its possessor had at least the intellectual qualifications necessary to do good work in his chosen line. No one should be allowed to take this examination, or at least be given a certificate, within five years of graduation. Before taking the examination he should present to the Board, evidence from his local society, of good moral and ethical conduct. This Board might function somewhat along the lines of the Board of Ophthalmology, or of that of the American College of Surgeons. Any man desiring to practice a specialty should not object to qualifying himself in his special line. Five years of general practice would broaden his vision in medicine, so that he would be able to see the patient behind the disease.

There are many graduate schools of instruction in which a man could easily prepare himself for such an examination. After passing such an examination, the applicant should be given a certificate or an emblem with the ethical right to display the same on his door, and in his office, so that the public may know that here is a graduate in regular medicine, who is qualified to do the work expected of him.

In Denmark[1] only those having a prescribed preparation are entitled to practice a specialty, and no one can obtain the designation of specialist within six years of graduation.

1. There should be a State Board of Medical Examiners made up of graduates in regular medicine, a license from which would mean that its possessor is a graduate of a regular medical school.

2. That there should be a re-adjustment

in the schedule of fees charged for services in the different branches of the practice of medicine, so that there would not be so great a variation as at present.

3. No man should be allowed to be considered a specialist until he has passed a special examination, before a competent Board, proving himself qualified as an expert in his particular line of work.

4. There should be a sure and ethical way of informing the public that a physician or surgeon is a graduate in regular medicine; that he is honest and ethical, and that he has the qualifications and ability to do the work that the public have a right to demand of him.

REFERENCE

[1]Rappleye, W. C.: Current Problems of Medical Education, J. A. M. A., 94:915 (March 29), 1930.

TREATMENT OF 500 CASES OF VINCENT'S DISEASE WITH REVIEW OF THE LITERATURE*

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For several months at the Union Printers' Home we had been treating a number of cases of Vincent's disease with apparently no satisfactory results. Becoming alarmed over the increasing number of cases and realizing a source of infection and reinfection to those being treated as well as to contacts, we decided to undertake the task of making routine mouth smears of everyone connected with the Home, from the farm hand to the bed-ridden patient, treating all those who were infected.

Our results are tabulated elsewhere. Here it will suffice to say that we found 93.5 per cent infected. These figures were higher than we had anticipated but it was decided to continue with the plan already determined upon.

As a preliminary step, each patient was ordered to discard his or her tooth-brush and refrain from using a brush during the course of active treatment. Also each patient was given a bottle of a 2 per cent sodium perborate solution and instructed to use it as a mouth wash every two or three hours. Later selected cases were given a mouth wash consisting of equal parts of hydrogen peroxide and saturated solution of potassium chlorate diluted with equal parts of water.

Each patient was instructed to report daily for treatment to our dentists who had complete charge of the epidemic. Treatment consisted in carefully spraying the gingival margins with a stock solution† under thirty pounds pressure in order to loosen the gum margins and cleanse them thoroughly. This procedure is very important and was strictly enforced by our dental supervisor, Dr. C. E. Ritchey. Following the spraying, the gum margins were painted with a 7 per cent solution of chromic acid. This constituted our local treatment and was carried out daily on each patient infected.

At the end of five days, a smear was again taken from each patient, but local treatments were continued regardless of the laboratory report. After the tenth day smears were again taken, and at this time all those who had either two, three or four plus, were given injections of either neo-arsphenamin intravenously or bismuth in the form of Thiobismol (Park Davis) intramuscularly.

Our laboratory technicians used the following standard in reporting smears: all slides were reported negative if no spirilli or fusiform bacilli were present in more than one field. If several of both organisms were present in more than one field, the report was one plus. If the count was up to ten in several fields the report was two plus. More than ten was reported three plus and when the organisms were uncountable the report was four plus. All one plus cases received local treatment only. The others received injections in addition to local treatment.

*From the Union Printers' Home, Colorado Springs, Colorado.

† Glycerine 40
Wine of Ipecac. 24
Liquor Potassii Arsenitis 40
Hydrogen Peroxide q. s. ad 480

We soon noted relapses after one negative smear following a course of ten local treatments. Probably these were re-infections from outside sources. All our silverware, dishes and glasses were sterilized for three minutes with live steam.

Cases that became one plus or negative after twenty local treatments or after injections, were given a new tooth-brush and told to continue using the mouthwash as before.

A negative smear was repeated several times. A careful recheck of all initial negative smears showed 65 per cent had become positive. Some were even four plus after a negative smear while a number were negative after the second smear only to be reported positive after the third smear.

We have already stated at the outset that in 93.5 per cent of cases the smears were positive. This does not agree with Stitt[65] whose text states that "Vincent's organisms are rarely found if ever, in a healthy mouth." We also noted that from a number of nurses and employees who had perfect teeth and gums, smears were reported as three and four plus. This apparently shows that a diagnosis should not be made from inspection alone.

Organisms were present in those who had recently had tonsillectomies, showing that this operation does not cure Vincent's disease, as some writers contend. A number of patients with only one remaining molar were four plus from smears taken around that tooth. Those without teeth were negative in every case. Smears were taken from the gums and throat. Extraction of teeth is contra-indicated as long as the acute stage of the disease exists.

One far advanced case of pulmonary tuberculosis had only one carious upper molar surrounded by ulceration. Routine treatment aggravated the condition. We considered injections to be contra-indicated in this case. Because of severe pain, we used ultra-violet rays and in five days the pain had disappeared and smears from the ulcerated areas had become negative for Vincent's organisms. The ulceration persisted, however, but had become markedly improved.

All of our cases that had only fusiform bacilli in smears, were those that had one or two injections of neoarsphenamine intravenously. Bismuth injections did not have any specific effect on the spirochete alone. It seemed to attack both organisms alike. If treatment of those having only fusiform bacilli were discontinued for one week and smears taken again, it was found that the spirilla had reappeared in every case. In other words, we believe that the spirillum does the "dirty work" while the bacillus is the "man behind the gun," and as long as the latter persists the disease will reappear with its symptoms. Simon[61] states "Occasionally, though exceptionally, bacilli only may be found in smears."

We believe that the spirochete is another form of the bacillus and that their existence does not depend upon symbiosis. If this were not true, then why are they not destroyed entirely when one of the combination disappears? And why not destroy the bacillus instead of the more difficult task of attacking the spirillum, if it is true that they can only exist together?

Statistics of 500 cases

CASES EXAMINED	INITIAL SMEARS Positive	Negative	FULL PLATES
500	322	178	98 (all neg.)

RESULTS FROM SMEARS EXCLUDING THOSE WITH PLATES

First smear 322 or 80 per cent positive—80 or 20 per cent negative

Second smear 350 or 87 per cent positive—52 or 13 per cent negative

Third smear 376 or 93.5 per cent positive—26 or 6.5 per cent negative

TREATMENT

(A) Local treatments alone

Days treated	Cases	Negative
5	400	113—28 per cent
10 to 20	400	272—71 per cent

(B) Local treatments and injections

Drugs Used	Number of cases treated	Number of injections received	Number receiving one injection	Per cent becoming negative	Number receiving two injections	Per cent becoming negative	Total No. of cases becoming negative
Neoarsphenamin	38	63	38	55	25	84	32
Bismuth	66	79	66	73	13	92	61

Of the thirty-eight cases treated with neoarsphenamin, six remained positive. Each of these six cases was given one injection of bismuth. Five or 83 per cent of these became negative.

Of the sixty-six cases treated with bismuth, five remained positive. Each of these five cases was given one injection of neoarsphenamin. Three or 60 per cent of these became negative.

Resume of findings

55 per cent of all the negative cases had full plates.

20 per cent of all cases had full plates.

65 per cent of those with initial negative smears were positive after a recheck.

6.5 per cent or only 26 cases were negative after three smears.

61 per cent of all positive cases had three and four plus smears.

71 per cent of all cases examined became negative with local treatment.

28 per cent were negative after five days and 71 per cent after ten to twenty days.

68 per cent of those receiving injections had either pyorrhea, syphilis or tuberculosis.

40 per cent of all cases had either pyorrhea or dental caries.

95 per cent of cases that became negative with local treatment alone were using the sodium perborate mouth wash.

35 per cent had only fusiform bacilli after one intravenous arsphenamin.

38 cases required 63 injections of neoarsphenamin to become negative.

66 cases required 79 injections of bismuth to become negative.

83 per cent of cases that were resistant to neoarsphenamin became negative with one injection of bismuth.

60 per cent of cases that were resistant to bismuth became negative with one injection of neoarsphenamin.

90 per cent of those with fusiform bacilli alone became negative after using potassium chlorate mouth wash.

Sodium perborate with saturated solution of potassium chlorate as a mouth wash showed no advantages over the former used alone. Thio-bismol (Park Davis) was used. The dose was three grains. Neoarsphenamin was given in 0.3 gram doses. The second dose was 0.45 gram.

All smears were made two days after the injections were given.

The following symptoms were noted in order of frequency of occurrence:

SUBJECTIVE

(1) Sore mouth and pain
(2) Sensitive teeth
(3) Depression
(4) Bleeding gums
(5) Salivation
(6) Lassitude
(7) Headache
(8) Earache
(9) Nasal discharge
(10) Gastro-intestinal upsets

OBJECTIVE

(1) Characteristic fetid odor.
(2) Lymphadenitis
(3) Fever
(4) Ulceration
(5) Dirty gray membrane
(6) Acid saliva
(7) Lymphocytosis
(8) Coagulation time increased
(9) Furred tongue
(10) Rapid pulse

The following symptomatology has been taken almost verbatim from Chevalier Jackson's text[30] in which he translated the comprehensive study of Vincent's disease written by E. J. Moure to whom Jackson refers as "the highest authority on this subject."

At the beginning the functional disturbances resemble an ordinary catarrhal laryngitis. Patient first has slight hoarseness some malaise, normal respiration, and may have a pronounced febrile condition, without, however, marked temperature elevation. He may have anorexia and a coated tongue. At this time mirror laryngoscopy reveals slight reddening and tumefaction of the base of the tongue and the epiglottis as well as of the vestibular portion of the larynx, the ventricular bands and the arytenoid region. There is not as yet any exudate.

This condition may last three or four days. The second period is characterized by more croupy characteristics. The respiration becomes embarrassed, and there is a wheezing on inspiration; asphyxia may threaten to the extent of requiring a tracheotomy. Swallowing is often difficult and painful, cough is frequent and when the infection reaches the trachea and bronchi it may be productive of purulent expectoration, often blood-streaked, and sometimes containing grayish gangrenous debris.

At this stage of the disease the general condition of the patient is much disturbed as a result of the involvement of the various viscera, as the kidneys, liver, or even the central nervous system. We are dealing, in fact, with a systemic infection which may be very grave.

Locally, one no longer observes only swelling and redness, but erosions and even diffuse ulcerations, irregular in form and covered with a grayish pultaceous exudate of diphtheroid aspect in the midst of an always abundant purulent secretion.

Generally, the first stage lasts three or four days, then the second period begins, only to disappear without bringing any striking manifestations. This is the benign form.

In the severe cases, on the contrary, the general condition is seriously affected from the beginning. Sometimes, even at the moment when the patient seems cured, one may see appear, without appreciable cause, a repullulation of the fuso-spirillar symbiosis, with a recrudesence of the functional disorders and local symptoms. In a case reported by Arrowsmith, the disease lasted several months; in one of my patients (Moure's) it persisted for eighteen months, with alternating periods of improvement and relapse.

Diagnosis

This is usually easy. Most of our cases had a characteristic fetid breath. They complained of sore throat, bleeding gums and sensitive teeth. Some said that they felt feverish. Vincent's disease is peculiar in that the early dirty grayish membranes usually go on to ulceration if not treated. The saliva is copious and always acid in untreated cases. Corson[14] says that one could guide progress by the changes in the reactions as they gradually go from acid to amphoteric and distinct alkalinity. One should note the presence of any lymphadenitis.

This disease cannot be diagnosed by inspection alone as the mouth may appear absolutely normal. A smear must show both spirilla and fusiform bacilli to be called positive. One negative smear means nothing. Care should be taken in selecting the areas to be smeared, such as deep in the gingival margins and around the lower third molars. The presence of Vincent's organisms does not exclude other conditions as the former is frequently a secondary invader.

Where there are many Vincent's organisms, be on the lookout for complications. Remember the blood picture resemblance of Vincent's to acute lymphatic leukemia, and the clinical resemblance of the mouth to pernicious anemia.

Make a culture to rule out diphtheria.

A blood Wassermann will help to determine the presence or absence of syphilis.

The routine blood examination may be of some value. According to Simon[61] there is usually no anemia, and the leucocytes are rarely increased beyond ten thousand.

Stitt[65] says there is a lymphocytosis and perhaps some relation between Vincent's and acute leukemia.

Differential diagnosis

(1) Syphilis
(2) Diphtheria
(3) Tuberculosis
(4) Carcinoma
(5) Trauma
(6) Pyorrhea Alveolaris
(7) Acute Leukemia
(8) Pernicious Anemia
(9) Erythema Multiforme
(10) Suppurative Periodontoclasia
(11) Mercurial Stomatitis
(12) Lead Poisoning
(13) Leukoplakia
(14) Bronchiectasis
(15) Pellagra
(16) Hematoma

Herbert S. Birkett in Jackson-Coate's text[30] says that the affection may be mistaken for diphtheria, syphilis or a malignant disease.

It is readily differentiated from diphtheria by the fact that the condition in Vincent's angina is more localized; there is general absence of hyperemia in the surrounding tissues; the exudate is readily removed, and there is not the general depression manifested in Vincent's angina as in diphtheria. A smear submitted to the microscope will at once show the presence of the fusiform bacillus and spirochete in the one, and the Klebs-Loffler in the other. Regarding the syphilitic lesion, the area involved in syphilis does not show such an extensive deposit of exudate. The granulations are much more florid, and the edges of the ulceration are very definitely indurated in a syphilitic lesion. The presence of a positive Wassermann will support the luetic theory. If it is malignant, the edges of the ulceration are very firm and hard, and the surface bleeds readily; the sub-maxillary glands are found to be hard and firm; a section will reveal its nature.

Bloodgood[6] says that the ulcer never looks like a mucous patch. It never has the ragged excavated edge of the tuberculous ulcer. It never has the induration of the cancerous ulcer. The diphtheritic type of exudate can be distinguished from diphtheria by the fact that regardless how diffuse the involvement or how extensive the ulceration, the patient does not exhibit toxic symptoms. The latter statement is contradicted by Mitchell.[39]

In discussing precancerous lesions of the oral cavity, Bloodgood[6] includes Vincent's disease among other infections. He states that in every instance, cover slips showing the typical spirillum will afford a diagnosis.

Vincent's infection may be present and complicate every benign and malignant lesion of the oral cavity. There is no relation between Vincent's infection and cancer. When an ordinary case of Vincent's resists treatment, look for infected tonsils, sinus disease, adenoids, some general disease such as Banti's splenic anemia or general leukemia, a vitamin deficiency disease of the type of scurvy, deficiency in some internal secretion or achylia. In about 5 per cent of cases of Vincent's infection which resist treatment, an additional cause is usually found.

We have found 68 per cent of our resistant cases to be complicated by syphilis, pyorrhoea, tuberculosis, and in one case, primary cancer of the tonsil.

Von Beust[75] in his work at the University of Louisville reports a great variety of organisms in mouth lesions. He is inclined to doubt the identity of the cultivated forms with those found in the smears. He does

not believe in relying upon the microscope for the diagnosis in suspected cases of Vincent's. "The mere presence of large numbers of Vincent's organisms on a slide without specific information proves nothing." He further states that he has observed, drawn and photographed these organisms for years, yet was unable to differentiate Vincent's infection from filth pyorrhea by the organisms present in the smears. "Of course, if a dentist presents a smear with a statement that the material removed was free from superficial erosions of the mucous membrane, or he mentions the occurrence of a foul odor or inflamed submaxillary glands, headache and fever, the diagnosis, if we exclude mercurial stomatitis, is obviously Vincent's infection."

Stokes, in his text[68] says that the identification of a Vincent's symbiosis of large spirilla and fusiform bacilli in smears does not by any means prove the condition to be an uncomplicated Vincent's angina. "Many ulcerative mouth lesions, including both undoubted malignancy and undoubted syphilis, may be contaminated with the Vincent's organisms. That it may superpose itself upon any type of chancre in the throat and completely obscure the clinical picture is no more unlikely than that the same mixture of infections may occur upon the genitalia."

Thompson[72] reports a fatal case of brain abscess from Vincent's angina following extraction of a tooth under local anesthesia. He states that Vincent's organisms have been found in connection with one case of acute leukemia one case each of pemphigus, hospital gangrene, pelvic peritonitis, industrial wounds, gunshot wounds, tooth wounds, and two cases of brain abscess.

Hunter[28] discusses the association of Vincent's organisms with pernicious anemia.

Stitt[55] states that the blood picture may resemble acute lymphatic leukemia. (This we have found true especially in the severe cases.)

Seecof[59] reports a case of Vincent's disease of the nose and accessory sinuses. The case was one of osteomyelitis of the cranial bones secondary to sinus involvement.

Davis and Pilot[16] report cases of putrid pneumonia and lung gangrene due to Vincent's organisms. They also report putrid otitis media, the organisms being present only in fetid discharges.

Miller and Epstein[37] found Vincent's organisms in the smegma of 51 per cent of uncircumcised males and about the clitoris in 60 per cent of women.

Brams, working with Davis-Pilot[16] found Vincent's in 51 per cent of specimens of smegma from the preputial secretions of one hundred uncircumcised adults.

Davis[15] says that about 5 per cent of gangrenous appendicies have been the result of activities of the fuso-spirochete association.

Shulman[60] reports a case of Vincent's infection of the nose in a three-year-old child.

Todd[74] in his text says "Vincent's organisms are quite constantly present in large numbers in ulcerative stomatitis, in noma, in erosive and gangrenous balanitis, and in certain leg ulcers in the tropics. (The latter statement one of us (A. L. B.) found especially true during our internship at the Gorgas Hospital, Canal Zone.)

Reasoner and Gill[52] report a case of osteomyelitis of the inferior maxillae due to Vincent's infection.

Fulwider[25] reports a case with lesions over the gums, tonsils, and pillars, soft palate, uvula and posterior nasopharynx with extensive ulcerative involvement of the larynx, trachea, stomach. He also reports a fatal meningitis following Vincent's infection.

Conclusions

(1) Vincent's organisms are present in practically every mouth.

(2) Treatment must be persistent until smears become negative and remain negative even though symptoms may have disappeared.

(3) No teeth, no Vincent's.

(4) Early cases may show no signs and the sypmtoms may be very slight.

(5) Vincent's infection complicating syphilis is the most difficult to cure.

(6) Destroying only one of the two organisms will not cure the disease.

(7) The fusiform bacillus is "the man behind the gun." The spirillum does the dam-

age but the bacillus is "the bane of its existence."

(8) In suspected cases of pulmonary tuberculosis with a persistently negative sputum and atypical chest findings, think of Vincent's infection.

(9) A negative diagnosis can never be made by inspection alone.

(10) It is important to keep the mouth alkaline.

(11) Potassium chlorate mouth wash is a specific for the fusiform bacillus.

(12) 83 per cent of cases that were still positive after neoarsphenamin became negative with one injection of bismuth, using only three grains at a dose.

REFERENCES

[1]Akerstrom, S. M.: Effective Treatment for Vincent's Infection, U. S. Nav. Bull., 22:440 (April), 1925.

[2]Albray, Raymonde A.: Vincent's Infection of the Mouth, Laryngoscope, 38:250 (April), 1928.

[3]Albray, Raymonde A.: The Diagnosis and Treatment of Vincent's Disease, Dental Items Interest, 51:275 (April), 1929.

[4]Barnes, H. A.: Medical Clinics of North America, Jan., 1920.

[5]Barenberg, L. H., and Bloomberg, M. W.: The Use of Sulpharsphenamin in Vincent's Angina and Stomatitis in Children, J. A. M. A., 83:25 (July 5), 1924.

[6]Bloodgood, J. C.: Oral Lesions Due to Vincent's Angina, J. A. M. A., 88:1142 (April 9), 1927.

[7]Boyd, Montague L.: Bismuth Is Absorbed, J. A. M. A., 93:269 (July 27), 1929.

[8]Bowman, Wilbur M.: Vincent's Angina or Membranous Tonsillitis—Diagnosis and Treatment, Va. Med. Monthly, 52:94 (May), 1925.

[9]Burns, E. M.: Vincent's Infection, California and Western Medicine, 25:344 (Sept.), 1926.

[10]Cadham, F. T.: Vincent's Disease—Infection Due to Fusospirillary Invasion, Canadian Med. Assoc. Jour., 17:556 (May), 1927.

[11]Carpenter, E. W.: Buccal Spirochetosis, Southern Med. Journ., 20:443 (June), 1927.

[12]Cecil, Russell L.: A Text Book of Medicine. Philadelphia: W. B. Saunders Co. 1927.

[13]Conrad, A. A.: Vincent's Angina, Nebraska State Med. Jour., 10:48 (Feb.), 1925.

[14]Corson, George: Vincent's Angina, The Atlantic Med. Jour., 27:820 (Sept.), 1924.

[15]Davis, David J.: The Pathology and Bacteriology of Putrid and Gangrenous Processes with Special Reference to the Fusiform Bacilli and Vincent's Spirochete, Jour. of Iowa State Med. Soc., 16:76 (Feb.), 1926.

[16]Davis, David J., and Pilot, Isadore: Studies of Bacillus Fusiformis and Vincent's Spirochete, J. A. M. A., 79:944 (Sept. 16), 1922.

[17]Davis, George W.: Trench Mouth and Antitoxin, J. of the Kansas Med. Soc., 27:374 (Nov.), 1927.

[18]Dickerson, W. E.: Fusospirillosis of the Oropharynx, West Vir. Med. Jour., 24:119 (March), 1928.

[19]Driscoll, T. Latane: The Treatment of Trench Mouth, Dental Cosmos, 64:1077 (Oct.), 1922.

[20]Driscoll, T. Latane: Treatment of Vincent's Angina, Vir. Med. Monthly.

[21]Erdman, Bernard: Is Bismuth Absorbed, J. A. M. A., 92:1252 (April 13), 1929.

[22]Faber, Harold K.: Treatment of Fusospirillary Infections of the Mouth in Children, Am. J. of Diseases of Children, 36:463 (Sept.), 1928.

[23]Fain, Henry G.: Vincent's Stomatitis—Its Diagnosis, Treatment & Prognosis, U. S. Veterans' Bureau Med. Bulletin, 2:601 (June), 1926.

[24]Giese, C. O., and McGovern, B. E.: Coincident Tuberculosis and Syphilis Diagnosis, Treatment, and Results, Colorado Medicine, 24:367 (Dec.), 1927.

[25]Fulwider, R. M.: A Study of Vincent's Angina, U. S. Veterans' Bureau Med. Bulletin.

[26]Gleason, E. B.: A Manual of Diseases of The Nose, Throat and Ear. Philadelphia: W. B. Saunders Co., 5th Ed., 1924.

[27]Hillsman-Driscoll: Report of a Case of Fuso-Spirillary Infection which Developed During Active Arsphenamin Treatment, Vir. Med. Monthly, 52:312 (Aug.), 1925.

[28]Hunter, William: Pernicious Anemia and Septic Anemia, British Med. Jour., 1:421 (March). 1922.

[29]Inman, J. C.: Vincent's Infection, Jour. of Florida Med. Assoc., 13:164 (Jan.), 1927.

[30]Jackson, Chevalier, and Coates, George M.: The Nose, Throat, and Ear and Their Diseases. Philadelphia: W. B. Saunders Co. 1929.

[31]Kline, B. S., and Blankenhorn, M. A.: Spirochetal Pulmonary Gangrene, J. A. M. A., 81:719 (Sept. 1), 1923.

[32]Mack, C. H.: Acute Gingivitis Associated with Fuiform Bacilli and Spiral Forms, Dental Corps U. S. N.

[33]McGruer, H. A., and Rubenstein, A. H.: Acute Pemphigus of the Throat with Positive Vincent's Angina, Archives of Otolaryngology, 3:259 (March), 1926.

[34]Mangabeira-Albernaz, P.: The Etiology and The Etiological Treatment of "Plaut Vincent's Angina." Laryngoscope, 39:1 (Jan.), 1929.

[35]Special Article: Vincent's Disease, J. A. M. A., 91:246 (July 28), 1928.

[36]McKenzie, Dan: Diseases of The Throat, Nose and Ear. St. Louis: C. V. Mosby Co.

[37]Miller, Hiram E., and Epstein, Norman: Vincent's Angina—The Significance of Fusiform Bacilli and Spirilla in Mucous Membrane Lesions, Calif. and Western Med.

[38]Mease, J. A., Jr.: Vincent's Angina, Report of a Case, J. of Florida Med. Assoc.

[39]Mitchell, J. W.: Trench Mouth, J. Florida Med. Assoc., 15:251 (Nov.), 1928.

[40]Neal, Thomas A.: Vincent's Disease—Report of 27 Cases, J. of Florida Med. Assoc.

[41]Norris and Landis: Diseases of the Chest and Principles of Physical Diagnosis. Philadelphia: W. B. Saunders Co., 4th Ed., 1929.

[42]Newkirk, H. D.: Acute Lymphatic Leukemia, California State Jour of Med., 19:360 (Sept.), 1921.

[43]Packard and Flood: Pathogenesis of Acute Leukemia, American Journal of Medicine, 160:883 (Dec.), 1920.

[44]Palfrey, Francis W.: Art of Medical Treatment. Philadelphia: W. B. Saunders Co., 1928.

[45]Pardee, Gordon K.: Vincent's Infection, N. E. J. of Med., 198:796 (May 31), 1928.

[46]Parmesano, L. J.: Three Common Infections of the Mouth, West Vir. Med. Jour., 20:241 (May), 1925.

[47]Perry, M. W.: Vincent's Angina—Report of Unusual Cases. International Clinics.

[48]Pierce, A. H.: Vincent's Angina, U. S. Veterans' Bureau Med. Bulletin, 4:861 (Oct.), 1928.
[49]Polvogt, L. M., and Crowe, S. J.: Predominating Organisms Found in Cultures from Tonsils and Adenoids, J. A. M. A., 92:962 (March 23), 1929.
[50]Rasmussen, A. T.: Differential Diagnosis of Vincent's Stomatitis, Trans. of Sect. on L. O. & R. of A. M. A., 1928.
[51]Reaves, R. G.: A New Treatment of Vincent's Angina Archives of Otolaryngology, 7:166 (Feb.), 1928.
[52]Reasoner, M. A., and Gill, William D.: The Use of Soap in Prophylaxis of Vincent's Infections, J. A. M. A., 88:716 (March 5), 1927.
[53]Reichman, H.: Jour, of American Dental Assoc. (Dec.), 1926.
[57]Routh, F. M.: Vincent's Infection of the Mouth and Throat, J. South Carolina M. A., 25:322 (Feb.), 1929.
[58]Samsell, T. L.: Vincent's Infection, Dental Corps U. S. Navy.
[59]Seecof, David P.: Vincent's Organisms, Archives of Otolaryngology, 10:384 (Oct.), 1929.
[60]Shulman, Harold I.: Vincent's Infection of Nose, Report of Case, Am. Jour. of Diseases of Children, 36:352 (Aug.), 1928.
[61]Simon, Charles E.: Manual of Clinical Diagnosis. Philadelphia: Lea and Febiger, 10th Ed., 1922, Pages 822-823-1101.
[62]Special Article: Vincent's Angina, J. A. M. A. (July 28), 1928.
[63]Spray, R. S.: A Case of Coincident Diphtheria and Vincent's Angina, J. A. M. A., 88:1234 (Apr.), 1927.
[64]Stark, H. H.: Twenty-five Cases of Vincent's Angina Successfully Treated with Sodium Perborate—Special Report of 3 Cases, Annals of Otology, Rhinology, Laryngology, March, 1915.
[65]Stitt, E. R.: Practical Bacteriology, Blood Work, Parisitology. Philadelphia: Blakiston, 7th Ed., 1923.
[66]Sutton, Irwin C.: Vincent's Angina Occurring in a Patient under Treatment for Syphilis, J. A. M. A., 83:1919 (Dec. 13), 1924.
[67]Sutton, Richard L.: Diseases of the Skin. St. Louis: C. V. Mosby Co., 6th Ed., 1926.
[68]Stokes, John H.: Modern Clinical Syphilology. Philadelphia: W. B. Saunders Co., 1927.
[69]Table Clinic: North Dakota Dental Association, May 8, 1928.
[70]Tenney, Charles F.: Systemic Manifestations of Vincent's Infection, Laryngoscope, 3:247 (April), 1928.
[71]Teuscher, C.: Applicazione locale di Salvarsan nell' Angina di Plaut Vincent, Deutsche Mediz. Wochenschrift No. 13, 1919, Apud Gaz. Ospedale et Clin., Uov., 1919.
[72]Thompson, L. E.: A Fatal Case of Brain Abscess from Vincent's Angina Following Extraction of a Tooth Under Procaine Hydrochloride, J. A. M. A., 93:1063 (Oct. 5), 1929.
[73]Tunnicliff, R. J.: Vincent's Angina, Journal Inf. Diseases, 25:1322 (Aug.), 1919.
[74]Todd, James C.: Clinical Diagnosis: a Manual of Laboratory Methods. Philadelphia: W. B. Saunders Co., 6th Ed., 1927.
[75]Von Beust, Theodore: Spirochetes and Fusiform Bacilli of the Mouth, J. A. D. A., 16:1415 (Aug.), 1929.
[76]Waite, Willis W.: The Treatment of Vincent's Angina with Sodium Perborate, Southwestern Medicine, 7:4 (Jan.), 1923.
[77]Ware, C. E.: A Case of Vincent's Angina, J. A. M. A., 89:450 (Aug.), 1927.
[78]Weaver, and Tunnicliff: Jour. Infec. Diseases, 1907.

TO MINISTERS OF THE GOSPEL OF EVERY DENOMINATION

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It is said by Cicero, that nothing is too absurd for some philosopher to have advanced. In like manner, it may be asserted, that there can scarce be imagined an observance, detrimental to the constitution of man, but what has been enjoined by some teacher of a false religion, or added to a true one by its expounders, and practiced by the bigots of both.

But you, my associates in the labour of mending mankind, do not so teach. You, one and all, are ready to hold up your hands against such abominations. The human frame must, according to you, be a consecrated vessel, destined to traverse the ocean of life, till it shall be carried by such gales, as it may please its all-wise architect to dispense, into the secure haven of the grave. Unfaithfulness to the charge of conducting this vessel, you can hardly rate, as inferior in criminality, to the violation of any duty, enjoined by the decalogue. For how shall he, who renders himself incapable of fulfilling commandments, escape being reputed their breaker?

You, in virtue of your office, enjoy peculiar advantages for influencing the minds of common men. And almost every page both of civil and ecclesiastical history bears in pretty distinct characters, that your powers are superior even to your advantages. You hold, in short, in your grasp, that which I should infinitely prefer to the golden rod, of which a mere glimpse could quell the peevishness of Charon himself; namely, the key which causes the chords of the human heart to spring into placid or tumultuous vibrations, according as you supply it. But you do not, it seems, easily part with this precious instrument. You would not, for a moment, commit it in trust, for the use of certain cheap tracts, which did a scheme, proposed and exemplified by your humble servant, a

very unexpected honour. You withheld it alike from the fair writer, and from her champions in a late (alas! not fair) transaction. How then may one, who has no pretensions to come into competition with these holy persons, for your favor, hope to borrow it? Would to God! you could, at least, be prevailed upon to employ it yourselves, for exciting in the flocks you respectively tend, a sense of what is due to their mortal, as well as to their immortal, part.

Of the topics, suitable to your public addresses, it is not for the profane to judge. But in private, you have endless opportunities of throwing out saving counsel, in regard to health. And such counsel you must allow, when effectual, to be the greatest temporal obligation, which mortal can confer on mortal. You perceive that we members of the medical profession are, in this respect, precisely in the situation of the ladies. We dare not speak a word, till we are addressed. But you may, at all times, without indecorum, press the subject of timely care. To be able to form a probable judgment when delay is no longer safe, is the whole, about which you need be anxious. I would not have you go beyond your accustomed office of friendly admonition. Within this limit, you will be sure, that the good, resulting from your interference, will be as little alloyed, as the condition of human affairs may permit.

Some members of the establishment are, not unfrequently, impelled by benevolent zeal, to act also as bodily physicians to their poorer parishioners. To certain reverend authors we are even indebted for labouring to instruct us in our own profession. The active mind of John Wesley would not suffer him to leave his congregations without the best counsel he could provide against the season of sickness. But the primitive physic of this modern apostle is, I fear, fit only for a primitive age—that is, an age which wants none. In general, to caution the unwary against self-neglect, is the point at which you should make a conscience of stopping. Your own profession you must feel to be load enough for the shoulders of one man. The idea of encumbering yourselves with the additional study of an entire bulky art, may justly alarm you. I therefore only invite you to charge yourselves with a portion of general information, in itself agreeable, and capable of application to a most interesting series of observations. This, I am persuaded, in the present state of things, you will find as much more useful, as it is more easy, than to push your endeavors further.

It is, you may observe, by dint of cultivating your talent of adaptation, that professional mediocrity has so constantly succeeded against genius and knowledge. By this (for it is the same principle at work under a different form) medical imposture is enabled to secure to itself retreats, as magnificent as that of the poet Lucan; in which, at its ease, it can contrive new arts of swindling, after the old have become stale. I have been credibly informed of an ingenious adventurer belonging to our profession, who was indebted for his first success, in one of the northern states of the American union to a ragged coat. And why not? What signifies a little difference in the objects of taste? Has a smart equipage never addressed itself with effect, in any of our great cities, to female favour?

The late pious editor of Suessmilch's order of God in the changes of the human species, declares that he has himself known many instances "where a cunning woman, or mountain doctor extorted, from a sick peasant, six, ten, or more dollars—a fee far beyond what any city physician would require. But the city physician is too learned, too grand, and, in general, too strange to inspire confidence. He may be too much occupied to let himself down, as far as could be wished, to the level of the ignorant. But the parish priest easily gains their good opinion. He knows their way of thinking, and is more able to descend, as it is fitting he should, to their comprehension."

If, therefore, as a body, you would take the part of the thoughtless against themselves; and of competent integrity against meddling imbecillity and obtrusive imposture; you would add more than you may suppose, to the obligations which society already owes you. The example of conduct, so beneficient and cautious, might check a scandalous abuse, which at present seems most rapidly increas-

ing. Whether that vigilant prelate, my Lord of ————, means to encounter this abuse in one of those charges, in which he vies with the most vigorous General of the age, and shows what might be expected from some bishops, could they in these times take the field, cased in complete armour, I have not been informed. But I plainly foresee that, one day or other, if to the public detriment it continue unchecked, it will bring a stain upon your cloth. For look into almost whatever newspaper you please, you will find reverend names, dangling by dozens, to the tail of frauds at half a guinea the bottle. I would fain hope that the appearance of these names, in such a disgraceful position, does but add one item more to the advertisers' account of forgery. I, at least, for one, am unwilling to believe, that so many members of a respected profession can lend or let out their credit for a fox's paw, to rake the pockets of the poor; whose money, however ill they can spare it, is often the least valuable thing, out of which, from reliance on the judgment of the Clergy, in many cases they find themselves choused.

Wishing, among other blessings of a new year, that a seasonable hint may preserve you all from the misfortune of being either dupes or accomplices to these or any other blood-sucking villains,

I remain, Reverend Sirs, Your most obedient servant,

THE AUTHOR.

Clifton, January 1, 1802.

Republication of this dedication which is taken from a volume of essays that were originally published under the title of Hygeia in 1802 *was suggested by the continued silence of the Denver Ministerial Alliance in spite of the letter of the Public Policy Committee of the Colorado State Medical Society, a copy of which appeared on page* 267 *of our July issue.*

INFANT FEEDING SUGGESTIONS FOR THE GENERAL PRACTITIONER*

FRANKLIN P. GENGENBACH, M. D.
DENVER, COLORADO

Successful infant feeding is divided into three stages:

1. Proper feeding of the mother before the baby is born, since it can attain its natural development only when the mother's blood can supply all of the food elements necessary for the formation of the various tissue cells of which the infant's body is composed.

2. Proper feeding of the mother after the baby is born, for here again the infant is dependent upon its mother for the essential food elements, supplied in the breast milk, so necessary for its natural growth.

3. Proper artificial feeding of the infant when its mother cannot nurse it, or when her milk becomes inadequate in amount for its health and development.

These stages are of equal importance so far as the infant is concerned, but the success or failure of each succeeding stage is largely dependent upon the success or failure of the preceding stages.

A simple illustration of the importance of the first stage is the fact that the calcification of the temporary teeth by the deposition of lime begins at the end of the fourth month of fetal life and should be completed by the time the baby is born.

In a similar way other food elements supplied by the mother's blood are just as important for the proper development of other tissues and organs of the infant's body.

It is equally evident that these same food elements must be supplied in the second and third stages if the infant is to maintain its health and attain its proper development. The food the mother eats must be entirely adequate to provide both for her own bodily needs and also for those of the infant.

It may seem rather trite to enter into a discussion of these various food elements, but

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a thorough knowledge of the whole subject of successful infant feeding, as well as of general dietetics, is based upon an adequate understanding of the roles played by these food elements and the manner in which they should be supplied to the infant.

Protein

The principal role of the protein in food is to build up body tissue and replace the body cells used up during life, but when fat and carbohydrates are lacking in the diet protein may also be burnt up to supply the heat and energy required for the maintenance of life. The mother obtains her protein by the ingestion of animal foods and animal products, such as meats, milk and eggs; also to a limited extent by legumes and cereals, which contain incomplete proteins. The infant obtains its required protein, first, through its mother's blood; second, through her breast milk, and third, through the milk of some other animal, usually cow's milk.

Fats and Carbohydrates

Fats and carbohydrates are somewhat similar in the roles they play in that they both supply heat and energy to the body and are in a degree interchangeable. Carbohydrates are usually better tolerated by the infant than fats, but as the latter, as found in breast and cow's milk, and in some of the other foods given the infant, also contain the essential accessory food factors Vitamins A and D, it is important that they (the fats) should not be entirely eliminated from the diet of either the mother or the baby. Fats are best supplied to the infant in the form of milk, yolks of eggs, and, when indicated, cod liver oil which is very rich in vitamins A and D.

Carbohydrates are supplied to the infant by sugars and starches, the sugar as lactose in breast and cow's milk, and also as cane or beet sugar, corn syrup, fruit sugars, and maltose-dextrin preparations in bottle feedings. Starches are converted into sugars in the body and are ordinarily supplied by barley, oat and wheat preparations and later by rice, potatoes and cereals.

Minerals

Minerals are necessary to build up the bony framework of the body, for the development of the teeth, and to carry on the vital metabolic processes of the body. The most important are calcium, magnesium, sodium, potassium, phosphates, chlorides and bicarbonates; also iron, iodine, sulphur, and possibly, according to recent investigations, copper and zinc. Minerals are obtained primarily from the vegetable kingdom, but to the infant most of them are well supplied in the milk, and later any deficiency is made up by the addition of fruits, cereals, eggs and vegetables to the diet. All of these mineral-containing foods are just as important to the pregnant or nursing mother.

Vitamins

Since the days when the artificial feeding of infants ceased to be only an art, and a rather poor art at best, and gradually developed into a science, and at times just as poor a science, each one of the various food elements previously mentioned has been brought into the limelight for investigation, and at times exploitation, as the principal offender in the failure of the art and science of artificial infant feeding. In recent years, however, much emphasis has been placed on the role played by the lack of essential vitamins, so perhaps something should be said about them at this point.

Limited time will not permit of an extended discussion, so suffice it to say that at first we had knowledge of only three vitamins, viz., (1) the "fat-soluble" vitamin A, which we believed was growth producing, anti-rachitic, and infection-resisting; (2) "water-soluble" vitamin B, which was anti-neuritic; and (3) "water-soluble" vitamin C, which was anti-scorbutic.

Now vitamin A has been divided into vitamins A and D, the latter its anti-rachitic factor. Vitamin B has been divided into vitamin B-1, or vitamin F, which is the anti-neuritic factor, and vitamin B-2, or vitamin G, which is known as the growth factor, or, occasionally, anti-pellagric factor, and also appetite-producing factor.

So far no division of vitamin C has been suggested, but our attention has been called to vitamin E, sometimes known as vitamin X, the fertility factor as determined by ani-

mal experimentation. The fertility factor would not naturally seem to play an important role in infant feeding, but vitamin E apparently has some influence on the metabolism of iron and the promotion of blood regeneration after anemia. So far it has been found in wheat, maize, olive and cottonseed oils, butterfat and leafy vegetables, especially lettuce.

While all of these vitamins are found in milk, it sometimes becomes necessary to reinforce the supply.

Additional sources of vitamin A are found in egg yolk, fats of glandular organs, especially cod liver oil, also leafy vegetables, carrots, and the pericarp of cereal grains.

Additional sources of vitamin B are found in the germs of all cereals, therefore not in milled cereals, and also in most vegetables and fruits. A very rich source of vitamin B is yeast.

Vitamin C is found in the citrous fruits, tomatoes, onions and cabbage, and to a less extent in apples, bananas, grapes, string beans and turnips.

Vitamin D is largely found in the same foods that contain vitamin A, and is very rich in irradiated ergosterol, to which the name of Viosterol has been given. It is also found in yeast and ergot and in small amounts in the skin, which can be activated by exposure to sunlight or other forms of ultraviolet radiation.

Marriott, in his splendid book "Infant Nutrition," also refers to the role of pigment as found in leafy vegetables, especially spinach, for the formation of hemoglobin.

Infant feeding suggestions

Having briefly discussed the important roles played by the various food elements let us rapidly proceed to the real purpose of this paper: Infant feeding suggestions for the general practitioner. Here again let me emphasize the importance of looking after the general health of the pregnant and nursing mothers, especially as to the necessity for a properly balanced diet.

We will now consider the nursing infant. First, the feeding interval. While most nursing babies seem to do better on a four-hour schedule, others do equally as well, if not better, on a three-hour schedule. Use the schedule which seems best adapted to the particular infant under observation, remembering that it is usually not necessary to awaken the sleeping baby for its feedings. When it is hungry it will awaken itself.

Do not wean an infant because it regurgitates some of its mother's milk, or has some colic, or has curds in its stools, if it is gaining well and is otherwise in good health. All of these conditions can usually be remedied by exercising a little patience and with persistent attention to the details of breast nursing. Never wean a baby because the breast milk is insufficient. All that is necessary is a properly prepared complemental bottle feeding.

The contraindications for breast nursing are really very few, the principal ones being a mother with open tuberculosis, a prolonged intercurrent infection, epilepsy, or general debility. Do not wean a syphilitic baby unless you are anxious to increase its chances of not living. Needless to say such a baby should not be breast nursed by a healthy wet-nurse.

The worst reason, or should one say excuse, for weaning a baby from a mother who has some milk for it is that you do not know what else to do for it. At least first call in another physician of perhaps more experience in that line to help you. Sometimes two heads are really better than one. Ordinarily you do not abort a pregnant woman without a consultation; why abort an infant from its natural nourishment without calling for help?

But what is to be done for the infant that has to be bottle fed? Right here may I say that infants no longer die because no food will agree with them. Such an excuse is no longer acceptable. The trouble can always be found either in the baby, (1) as mechanical conditions, such as pylorospasm, pyloric stenosis, or a congenital defect, which may have to be relieved by mechanical procedures; (2) congenital debility such as atelectasis, congenital heart disease, or prematurity; (3) intercurrent infections in the infant, lowering its powers of digestion; or else more often, in the bottle feeding itself, whether it be the

composition of the food used, its modification, or the method of giving it.

An infant that has to be bottle fed usually can be bottle fed by trying modern procedures. But if it comes to the worst, revert to first principles, find a wet nurse if possible, or else beg, borrow, or if necessary steal some breast milk and give it in the bottle. But in any case do not let the baby die because no food will agree with it, turn it over to someone else and let him take the blame if the baby insists on dying.

What are the essentials of infant feeding? First the baby must be given enough protein to maintain life and enough more to promote proper growth. The breast fed infant can thrive on one gram of protein per pound of body weight per day, but as the protein of cow's milk has a poorer nutritional value for the baby because of its lower proportion of lactalbumin protein to casein protein, 15 per cent as against 60 per cent in breast milk, more protein has to be given to the bottle fed infant, usually 1.5 to 2.0 grams per pound per day.

As each ounce of cow's milk contains about one gram of protein the baby should have 1.5 to 2.0 ounces of milk per pound per day. Incidentally that amount of milk will also take care of the infant's fat requirement.

What of the carbohydrate requirement? The breast fed infant gets about 5.5 grams, or 0.2 ounces of sugar per pound per day, or approximately 1 per cent of its body weight a day. There are about 1.5 ounces of sugar in a quart of cow's milk, or 0.05 ounce of sugar in each ounce of milk, so one could readily estimate the additional amount of sugar necessary for the bottle fed infant. Fortunately, however, for the infant feeder the baby's tolerance for sugar is usually high and one therefore need not be so exact. It is practically always safe to add 5 per cent of additional sugar to the day's formula, and many babies will tolerate an additional 10 per cent or more, as Marriott has so well demonstrated. If in doubt add one tablespoonful of sugar to the day's feeding and increase it by one tablespoonful every few days until signs of intolerance begin to develop.

What are the signs of carbohydrate intolerance? They are those of gastro-intestinal fermentation, viz. excessive gas, diarrhea and irritated buttocks. One may use ordinary table sugar, corn syrup, milk sugar, or one of the maltose-dextrin preparations, the two last named being more laxative. Maltose is most laxative and dextrin least laxative. Some babies seem to have a natural tendency to loose bowels. In these cases decrease, or if necessary, omit the sugar and use starch in the form of thick cereal gruels as carbohydrate in the formula.

What should be the total amount of the day's formula? The infant requires about 3 ounces of water per pound per day. Most of this it gets in the feedings. An infant will seldom take more food than it can handle. It is usually safe to give the baby at least 1 ounce more on a 3-hour schedule, and at least 2 ounces more on a 4-hour schedule at each feeding than it is months old, but ordinarily not more than one bottleful is given at a feeding. If the baby is not satisfied with one bottleful it probably needs either a stronger formula or additional accessory foods. Water should be added to the milk used to make up the required amount of formula.

I, personally, believe all milk used for infant feeding should be pasteurized, boiled, or at least heated for ten minutes in a double boiler over a brisk fire. Such milks are easier for the infant to digest and certainly are freer from pathogenic bacteria. Such milk also continues to have all the necessary food elements discussed, with the possible exception of lack of vitamin C, which is the least resistant to heat, but such lack of vitamin is easily made up by adding orange, lemon or tomato juice to the diet.

Is it necessary to acidify the milk? Not with all babies, since many do equally well on sweet milk, but some babies can handle larger amounts of cow's milk if it has first been boiled or acidified. Both of these procedures make the milk more digestible, and acidifying assists in overcoming the higher buffer value of cow's milk, which is all right for the calf, but does make it more difficult for the human baby to digest than breast milk.

What acid should be used and how much?

Usually lactic acid, about one teaspoonful to a quart of milk, or 3 drops to each ounce of milk, but many infants do equally as well on milk acidified with orange or lemon juice. The milk should first be boiled or heated in the double boiler as suggested, and then cooled down to room temperature before adding the acid or fruit juices. About one tablespoonful of lemon juice, or two tablespoonsful of orange juice should be added for each pint of milk used. The fruit juices also take care of any lack of vitamin C.

Dr. Julius H. Hess, of Chicago, reports splendid success with the use of orange juice in the formula and the gradual addition of egg yolk to take care of any lack of vitamins A and D or of iron in the cow's milk.

What of the so-called proprietary infant foods whose number is rapidly becoming legion? A few of the different types are sweetened and unsweetened evaporated milks, malted milks, dried milks, foods that have been synthetically prepared to resemble breast milk, and others that are added to cow's milk to modify it and make up any deficiency of carbohydrate.

Never use sweetened evaporated milk alone over a long period. It is an unbalanced food containing more than 50 per cent of sugar, and in the dilutions often used is lacking in the required amount of milk solids, and also often pre-disposes to that bugbear of the infant feeder, rickets. In some infants with weak digestion it is well tolerated, when breast milk cannot be obtained, but later cow's milk should be added to it, or the formula changed to a better balanced food.

Unsweetened evaporated milk is well tolerated and can be used when cow's milk cannot be obtained, or is not clean. Remember that a mixture of equal parts of unsweetened evaporated milk and water has about the same composition as whole cow's milk.

Malted milks are open to the same objection as sweetened evaporated milks, containing as they do about 75 per cent of carbohydrate. At times they may be used with cow's milk because of their laxative qualities and to give additional carbohydrates.

Dried milks are often very useful, especially in traveling, and those partially skimmed before drying are useful where the infant has a poor tolerance for fat.

Foods that have been synthetically prepared to resemble breast milk, such as S. M. A., Similac, Recolac, Lactogen, etc., are well tolerated by some infants, but apparently are too strong for others, especially if they have a poor tolerance for high fat or carbohydrate.

So-called milk modifiers, such as Mellin's Food, Horlick's Food, Eskay's Food, Dennos Food, Modilac, Imperial Granum, etc., at times are also useful if one is familiar with their composition, and no food should be used unless one knows what it contains and is familiar with its expected effect upon the infant.

Dr. Finklestein's Eiweiss, albumin, or protein milk is often useful in summer diarrheas, especially when there is a sugar intoxication present. The same is true of the more recent powdered albumin or protein milks, especially after an initial period of starvation. They should however, not be used full strength at first.

Summary

In conclusion I would like to ask your indulgence as I again emphasize—

1. The advantages of breast milk in successful infant feeding, even when the amount is insufficient, because it is the "specific" food provided by nature for the human infant.
2. The necessity of paying as much attention to the diet of the pregnant mother and the nursing mother as to that of the infant.
3. The necessity for a fundamental understanding of the important food elements, the role they play in the body, and the sources from which they may be obtained.
4. A practical working knowledge of the composition of cow's milk and the other foods and preparations used in artificial infant feeding, and of the procedures necessary for properly modifying cow's milk so that the infant can more easily digest it.

DISCUSSION

J. W. Amesse, Denver: Mr. President and members: In this splendid review of infant feeding, which represents the best thought in medicine, Dr. Gengenbach goes on the assumption that we

get in all instances good milk; and while he did not mention the water content, which is a vital part of infant feeding, he would have done that if he had had more time. Now, this assumption of good milk is not always borne out by investigation. Those of us who feed babies by this method, and our students who have been instructed in it for many years, have often wondered why we do not get better results. The babies come into the hospital emaciated, dehydrated, with vomiting and diarrhea, because they have not investigated the source of the milk supply. Milk is a vital fluid: it contains more than protein, salts, fats and sugar. It contains enzymes, ferments and complex bodies unclassified and all these elements are influenced by the character of the food that the cows receive. If an individual cow, for example, or a herd, is left to free grazing at this time of the year, they will inevitably eat noxious weeds and thistles, containing poisonous substances at times. These substances are reflected in the milk exactly as if the nursing mother had eaten cantaloupe, or watermelon or salads which are taboo in the maternal diet, so that very often without changing the formula at all we can get excellent results by simply changing the dairy. For example, if I do not get the results I feel I should in infant feeding, and we know that the herd from which these children derive their milk is one with free grazing facilities, we put them on milk from a herd that has dry feeding, stall fed cattle, and the next thing we investigate is the water supply. Many babies will have diarrhea simply because of impure water, and especially at this season of the year when our receptacles for water are filled with weeds. These lakes cannot be drained; they are filled with weeds and with the high temperature of the water in summers like this, the weeds are partially dissolved, these elements go through the filter with disastrous results, so that we should feed as safe a milk supply as we can get, and a pure water supply. Where there is only one dairy, it is desirable to get a powdered milk of which there are excellent varieties now obtainable in all markets.

J. H. Woodbridge, Pueblo: I am sure we have all enjoyed this very scientific and delightful paper by Dr. Gengenbach. Of course, I feel that there is practically nothing that I could add to such a paper. I liked very much the primary positions that he gives, for instance the proper feeding of the mother during pregnancy and the proper care of the mother after pregnancy, and then the artificial feeding. I thought I might stress a little bit the first two points, as Dr. Gengenbach paid more attention in his talk to the latter point. Of course, pediatricians feel that one of the prime duties of the mother is to produce as healthful a baby as possible. We all realize that the more healthy the mother is the more healthy the baby will be. Therefore, attention to the general health of the mother before the baby is born is very important. Such attention may result in the removal of general infections, infected teeth, or the cure of urinary infections. Sometime ago there appeared one or two articles, I think in the Journal of the American Medical Association, dealing with anemias during pregnancy. We find that quite a number of mothers are extremely anemic, and it is very important to the infant that this anemia in the mother should be taken care of. Another thing that strikes pediatricians is very early development of rickets after birth. Of course, that means that the fetal life must have something to do with it. Therefore, in all probability, attention to the mother's hygienic life, such as sunshine, fresh air, and even the administration of cod-liver oil, has lots to do with the growth and development of the infant. Another point which has been stressed: Two or three years ago we saw the administration of iodine in pregnant mothers. You know during pregnancy that the thyroid gland is very prone to enlarge, and the administration of iodine seems to be indicated in these patients. It seems that in about 50 per cent of pregnant mothers, the administration of iodine is indicated. I have even read somewhere of some investigation which seemed to prove that the foundation for the development of goiter is frequently laid in fetal life. Now then, as to the proper feeding of the mother after delivery, of course, that is very important, and Dr. Gengenbach laid down the different food elements that are important. One thing which comes to my mind is this: Many of these mothers after their delivery have certain physical conditions that have lots to do with the production of proper milk, and the quantity of it. For instance, after delivery they continue to flow a little bit, maybe for a month or six weeks later. Now, in these patients it is not unusual to find that they have a certain degree of subinvolution, that they have a cervical tear or a uterine displacement. Now, those phases have a very great influence on the supply of breast milk, if the mothers are anemic, have loss of appetite or constipation. All those things should be attended to and corrected in order to procure proper nourishment for the infant.

Dr. Gengenbach (closing): I appreciate the kind discussion of my paper and only wish that time would have permitted its thorough presentation in the form of a blackboard talk.

October meetings

The Association of American Medical Colleges is to hold its forty-first annual meeting in Denver this month at the Medical School of the University of Colorado. The first meeting will be on Tuesday, October 14, at 9:30 a. m. The program will occupy three mornings and will include papers by Drs. Franklin G. Ebaugh and Robert C. Lewis of the University of Colorado. An invitation to attend these sessions is extended to members of the Colorado State Medical Society by Dr. Maurice H. Rees, vice president of the Association.

The Central Association of Obstetricians and Gynecologists will meet on Thursday, October 9, in Kansas City and on October 10 and 11 at Hotel Elms, Excelsior Springs, Missouri. Members of the profession are invited to attend and to register without fee. Programs will be furnished by Dr. E. D. Plass, University Hospital, Iowa City, Iowa.

CASE REPORTS

AGRANULOCYTIC ANGINA FOLLOWING THE ADMINISTRATION OF NEO-ARSPHENAMINE

REPORT OF A CASE WITH RECOVERY FOLLOWING THE USE OF SODIUM THIOSULPHATE*

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Although the subject of reactions following the administration of the arsenical compounds has been dealt with extensively in the literature, the reports of cases describing a granulocytic aplasia, a sa result of the injection of arsphenamine or its derivatives, are comparatively few. The following case was, therefore, felt to be of sufficient interest to justify its being reported, both on account of the paucity of the literature on this subject, and on account of the favorable outcome of the case, following the use of sodium thiosulphate intravenously.

Report of case

Hospital No. 28606, male, white, aged 31, was admitted September 21, 1929, and discharged September 27, 1929, improved. The family history and past history were essentially negative and irrelevant.

Present illness. In the early part of August, 1929, the patient developed a moderately severe case of Vincent's angina which was treated by his dentist with local applications, chiefly of mercurochrome, with rather indifferent success. In view of the slow progress from the local applications alone, he was advised to have arsenic intravenously; therefore, on August 28, 1929, he received 0.3 gms. of neoarsphenamine intravenously without incident. Further injections of the same arsenic compound were given as follows: August 31, 0.4 gms., September 3, 0.4 gms., September 6, 10, 13, and 17, each 0.5 gms., for a total of 3.1 gms. The patient had no symptoms or signs suggestive of a reaction after the first six injections, and the gums responded very satisfactorily to this medication.

Approximately sixteen hours after the seventh and last injection, the patient complained of general malaise, sore throat, and fever. Within another eight hours, he was moderately prostrated, his chief complaint at this time being swelling of and pain in the gums without bleeding.

Physical examination. (September 18, 1929)—The patient appeared to be acutely ill. The temperature was 103° F.; pulse, 108; respiration, 24. There was no skin rash. The gums were swollen and red with beginning necrosis at the alveolar margins. The breath was foul. The pharynx was congested, but showed no exudate. The submaxillary glands were moderately enlarged and tender. An examination of the heart, lungs, abdomen, and extremities revealed nothing remarkable. Repeated stained smears from the mouth showed numerous mouth organisms, but no spirilla or fusiform bacilli.

Course—September 19: The temperature ranged from 102° to 103.°5 F. The necrosis of the gums was progressive regardless of local applications of sodium perborate, mercurochrome, and potassium chlorate. There was no bleeding and no rash at this time or subsequently. Examination of the urine gave negative results.

September 20: The temperature was from 102°.5 to 104°.2 F. The mouth condition was unchanged. He vomited frequently during the night.

September 21: The patient was removed from his home to St. Joseph's Hospital. The temperature was 102°.4 F., pulse, 128; respiration, 20. There were numerous grayish white sloughs on the gums extending onto the hard palate, one of which measured approximately 1.5 cms. in diameter. The glands in the neck were more swollen and markedly tender. Sodium thiosulphate 0.7 gms. was given intravenously.

September 22: The general condition

*Read before the Medical Society of the City and County of Denver on January 21, 1930.

seemed improved. The temperature was from 100° to 101° F. A second dose of sodium thiosulphate, 1.0 gms., was given.

September 23: There was beginning separation of the sloughs in the mouth. The third and last injection of sodium thiosulphate, 1.0 gms., was given.

The subsequent progress (September 24-30) was satisfactory. The temperature reached normal by lysis on the eighth day, the cervical adenopathy regressed, and the sloughs on the gums were replaced by granulation tissue without loss of substance.

Laboratory findings: The detailed laboratory findings including blood counts, blood chemistry, blood culture, and urinalyses are shown in the accompanying table.

TABLE 1 - LABORATORY FINDINGS

Date	Hgb %	R.B.C.	Platelets	W.B.C.	Differential Count					Urine	Remarks
					Polys.	Small lymph.	Large lymph.	Large Monos.	Myelocytes		
9-19-29	-	-	-	-	-	-	-	-	-	Negative	-
9-20-29	90	4,700,000		6,000	21	38	24	8	1	-	-
9-21-29	86	5,020,000	340,000	2,200	23	46	23	5	3	Albumin 3+ Granular casts 3+ Oliguria	Blood Culture - No Growth Blood Chemistry N.P.N. 33.3 mgs per 100 c.c. Creatinin 1.5 mgs per 100 c.c. Suger 125 mgs per 100 c.c. Sodium thiosulphate 0.7 gms intravenously.
9-22-29	-	-	-	4,000	10	86	-	3	1	-	Sodium thiosulphate 1.0 gms intravenously.
9-23-29	-	-	-	8,300	50	47	-	2	1	Albumin 2+ Several granular casts	Sodium thiosulphate 1.0 gms intravenously.
9-24-29	-	-	-	5,600	50	43	-	5	2	Albumin 1+ A few granular casts	-
9-25-29	-	-	-	6,700	60	36	-	3	1	Albumin 1+ A few granular casts	-
9-27-29	-	-	-	9,200	67	28	-	3	2	Albumin - None No granular casts	-
9-30-29	85	4,400,000	500,000	8,000	75	25	-	-	-	Albumin - None Occasional granular cast	Coagulation time 1.75 Min. Bleeding time 4 Min.

Discussion

The interesting features of this case were: the high, continuous fever, the prostration, the ulcerative stomatitis, the lack of a skin rash and hemorrhages, and the blood picture which showed no anemia or reduction of the platelets, but a definite and moderate leucopenia with a marked decrease of the polymorphonuclear neutrophil cells, and a relative increase of the lymphocytic group.

Although stomatitis in this particular type of arsenic poisoning is not a constant finding, it is described rather frequently as noted by Dodd and Wilkinson[1] (1928) who found stomatitis to be present in 11 of the 24 cases which they reviewed. In this same series of case reports, leucopenia was described in 22, and anemia with hemorrhages in 20 of the 24 cases. Moore and Keidel[2] (1921) called attention to the similarity of the blood pictures in stomatitis, dermatitis, and aplastic anemia resulting from the use of neoarsphenamine.

A review of the literature from the time that Leredde,[3] and Labbé and Langlois[4] first described cases of blood dyscrasias following the use of an arsphenamine, shows that hemorrhagic and anemic manifestations in these cases are the outstanding symptoms and signs. In fact, every classification (Aubertin,[5] O'Leary and Conner,[6] and Kennedy[7]) of this type of blood dyscrasia includes only purpura simplex, purpura with hemorrhage, and aplastic anemia. It is suggested that this classification be enlarged by the addition of a fourth group, namely, the agranulocytic, to include those cases which show no evidence of purpuric or hemorrhagic disturbances, and whose blood pictures show only alteration of the granulocytic elements. This blood picture supports the contention of Evans[8] that the action of salvarsan on the bone marrow is selective. Reports of such cases in the literature are rare, but they are sufficient to warrant their inclusion as a separate entity in any classification of blood dyscrasias arising as a com-

plication in the administration of arsenical compounds. Dodd and Wilkinson,[1] and Wheelihan[9] each report a case of this nature occurring in a child, the first terminating fatally, and the latter resulting in recovery without specific medication. A third typical case belonging in the agranulocytic group was reported in 1928 by Pouzin-Malègue.[10] This case occurred in an adult following antiluetic treatment, and was characterized, before death, by an ulcerative angina and leucopenia; no other clinical manifestations and no other alterations in the blood being described.

A survey of the literature shows that neoarsphenamine is the drug most frequently associated with the blood dyscrasias following the use of arsphenamine or its derivatives, although the same reaction has been known to follow the use of almost all of the organic arsenical compounds, especially sulpharsphenamine. Smith,[11] in 1925, inquires whether these reactions are due to the newer arsenicals or to the more careful observation and more frequent reporting on the part of the physicians. Schamberg[12] likewise, calls attention to the frequent occurrence of these reactions following the use of the newer arsenicals, especially neo and sulpharsphenamine. Kennedy[7] (1928) states that old arsphenamine never produces such a syndrome and he advises its use in the further treatment of these cases, but Moore and Foley,[13] in 1920, report four cases of blood dyscrasia following the use of arsphenamine (the salvarsan and diarsenal brands). Of further interest in this connection is the unusual case reported by Wheelihan,[9] in 1928, of a girl, 9 years of age, suffering from athetosis who was treated by large doses of potassium arsenite, and who developed an ulcerative stomatitis and a characteristic blood picture of leucopenia (1300 cells) with marked reduction of the polymorphonuclear neutrophils (3 per cent), but without marked disturbance of the erythrocytes or platelets. Recovery resulted after discontinuance of the drug. This is the first and only case on record of this type of reaction following the use of an inorganic arsenic compound. The report of this case contradicts Aubertin's[5] statement that the arsenic radical is not the cause of these reactions.

There is no satisfactory explanation for the blood reaction in these cases at the present time, although numerous hypotheses have been advanced from time to time.

On account of the marked similarity of the findings resulting from benzol poisoning as described by Selling,[14] and Rohner, Baldridge and Hansman,[15] the benzene radical in the arsphenamines has been credited with being the cause of these unusual reactions. A review of the literature shows that such men as Aubertin;[5] Dodd and Wilkinson;[1] Vedel, Giraud and Giraud[16] uphold the hypothesis that the benzene radical is the causative factor. There is no experimental evidence to support this theory, and the previously mentioned case of Wheelihan's[9] of poisoning due to an inorganic arsenic compound would seem to disprove this assumption.

Moore and Foley,[13] in 1921, reported separate cases showing similar reactions after receiving doses from the same ampule of arsphenamine, and they concluded that the most satisfactory explanation of the reactions was that there was some impurity in the drug. This is somewhat analogous to the "Substance X" theory of Schamberg.[17] Kennedy,[7] however, disputes the drug impurity theory on the grounds that his own case had an exactly similar reaction at two different times after using an entirely different lot of neo-arsphenamine. Likewise, Smith[11] reported a case which showed similar toxic manifestations after doses of neoarsphenamine a week apart.

This brings us to the hypothesis of individual idiosyncrasy, of which the last two cases cited would seem to be examples.

The three hypotheses mentioned above are those most frequently discussed in the literature, but, in addition, there are numerous other mechanisms which from time to time have been mentioned to explain the unusual blood dyscrasias following the administration of the arsphenamines. O'Leary and Conner[6] have carefully reviewed and tabulated these other suggestions, and state that no deductions were made from the accumulated evidence. Therefore, it will suffice

simply to list their classification of the other possible causes as follows: (1) Neo-arsphenamine has a direct action on the cell producing elements in the bone marrow; (2) the organic arsenic compounds are hemolytic because of the direct action of the arsphenamine itself, or the sodium hydroxide; (3) neo-arsphenamine is an anticoagulant because of its action on the thrombin or its precursors; (4) the anticoagulating properties are due to action of arsenobenzol on fibrinogen by direct combination with it; (5) arsphenamine produces incoagulability of the blood and the action is chiefly on fibrinogen without action on thrombin; (6) the change in the coagulative properties of the plasma proteins after the injection of arsphenamine may be explained by the assumption that the compound with arsphenamine is soluble at certain hydrogen-ion concentrations; (7) that the blood changes are the result of jaundice and dermatitis; (8) that the toxic effects of arsenic on the spinal cord produce the dyscrasias.

Regardless of the mechanism of production of the poisoning, the pathological changes indicate a hemorrhagic diathesis and a profound intoxication of the bone marrow which at autopsy shows an almost complete aplasia, especially of the granulocytic elements. Moore and Foley[13] believe that the organic arsenicals have both a toxic and a stimulating effect on the bone marrow. The toxic effect manifests itself first on the neutrophilic group of cells, next on the eosinophilic and basophilic cells, and lastly on the large lymphocyte-transitional group, while the stimulating effect is apparent first on the eosinophilic and basophilic cells, and secondly, when these are decreased by toxicity, on the large lymphocyte-transitional cells.

The postmortem findings in the other organs of the body are variable and not pathognomonic. For the most part, the pathological findings are those of small and large hemorrhages into the substance of the lungs, liver, and kidneys, and less frequently involvement of the meninges, myocardium, and gastro-intestinal tract.

Differential diagnosis

The diseases which resemble the syndrome under discussion and which may be confused with it at times, are the following: (1) Agranulocytic angina, (2) Aleukemic leukemia, (3) Aplastic anemia, (4) Certain poisonings, as that following benzol, thorium, or roentgen-ray, (5) True purpura hemorrhagica, (6) Sepsis.

Although the clinical manifestations and laboratory findings in each of these diseases may be very similar to those found in the arsenical blood dyscrasias, the chief point in the differential diagnosis, and the one which should make the diagnosis relatively easy, is the history of the use of any arsenical compound, inorganic or organic.

Treatment

The treatment of the blood dyscrasias resulting from arsenical poisoning is divided into three types: First, the prophylactic; second, the symptomatic or supportive; and third, and most important, the specific treatment. Only the first and last methods of treatment will be discussed.

Prophylactic treatment—The important consideration under this heading is the careful selection of cases, and the frequent examination of the blood and urine during the course of the treatment. McBride and Dennie[18] enumerate the following factors which they consider to be predisposing causes of the reactions: liver injury of any kind, focal infections, acute febrile infections, acute or chronic nephritis, arteriosclerosis, and pernicious anemia.

Moore and Keidel[2] call attention to the appearance of prodromal or warning symptoms in the course of treatment. These are manifested by itching, mild rash, prolonged fever, malaise, or any tendency toward purpura. The authors examined the blood in several cases showing such prodromes and discovered a slight decrease in the neutrophil cells, an eosinophilia varying from 5 to 8 per cent, a slight increase in the large mononuclear transitional group, and the presence of numerous fragile leucocytes. This being true, it can be readily seen that a serious toxic reaction could often be

avoided by careful observation and frequent blood counts in the doubtful cases.

Specific treatment—Inasmuch as hemorrhages and purpura are extremely common findings in this type of poisoning, the use of blood transfusions has always held an important place in the treatment; in fact, it has been practically the only therapy described in these cases. It would seem that the chief value of transfusion is simply to replace the blood lost by hemorrhage or that destroyed by the intoxication, no specific or stimulating action being attributed to it, as shown by Dodd and Wilkinson[1] (1928) who reviewed twenty-four cases of blood dyscrasias resulting from the use of the arsphenamines, and state that transfusion was the only treatment used, but that it was without any apparent benefit, the mortality in this series of cases being close to 60 per cent. On the other hand, Aubertin[5] (1926) advocates the use of transfusions and reports a satisfactory recovery following two transfusions in a severe case of neo-arsphenamine poisoning showing marked aplastic anemia, hemorrhages, and leucopenia. In summary it may be said that the transfusion of unaltered blood by the direct method is indicated in the severe cases with purpuric manifestations, but its use in the aplastic type of anemia is of doubtful value.

Since Ravault,[19] 1920, first advocated the use of sodium thiosulphate in arsenical dermatitis, there have been numerous descriptions in the literature of its use in cases of arsenic and other metallic poisonings. In the majority of the cases of arsphenamine reactions, however, its use has been confined to the more mild types of reaction, such as dermatitis and jaundice. A review of the literature pertaining to the treatment of the blood dyscrasias due to arsenic injections, reveals only three cases (Kennedy,[1] one case; O'Leary and Connor,[3] two cases) in which sodium thiosulphate was used, and in each instance the outcome was favorable.

The definite value from the use of sodium thiosulphate in arsenic poisoning, inorganic and organic, acute and chronic, is a well established fact, but the mode of action and fate of the drug in the body is a subject of considerable discussion.

McBride and Dennie[18, 20] (1923, 1924) contend that the sulphur contained in the drug causes a precipitation of the arsenic, producing the non-toxic sulphide of arsenic. They further state that the use of sodium thiosulphate "renders those substances soluble and excretable which have been taken up by the body and have been tightly bound by a protein molecule." In contradistinction to this theory, Groehl and Myers[21] do not believe that the arsenic is precipitated as a sulphide, inasmuch as only acid solutions act in this manner. Their theory is that the arsenic is precipitated in the form of a complex protein compound.

Although the exact mode of action is doubtful it seems to be the consensus of opinion that the use of sodium thiosulphate produces an increased excretion of arsenic in the urine, feces, skin, and hair, as shown by the work of Groehl and Myers,[21] Althausen and Gunther,[22] and Kuhn and Reese.[23] These latter authors, experimenting with rabbits, were able to show that there was less kidney damage when a combination of sodium thiosulphate and arsenic was injected than when arsenic alone was used. They, therefore, concluded that one function of the drug was the rapid restoration of the kidneys to normal. Young,[24] on the contrary, claims that there is a decreased arsenic excretion in the urine following the use of sodium thiosulphate, but he agrees that there is less kidney damage, and to explain this finding he believes that the thiosulphate acts by forming an insoluble compound with arsenic which is excreted more slowly and, therefore, does not reach the kidney in such high concentration.

From the time that sodium thiosulphate was first advocated in 1920 there were no reports of reactions from its use other than transitory febrile disturbances until a report of two cases in 1927 by Frazier.[25] These cases after receiving small doses (a total of 0.9 gms. in one case and a total of 0.2 gms. in the other) of sodium thiosulphate developed marked purpuric vesiculobullous dermatitis. There was no break in technique of the preparation of the drug, and the only explanation is the possibility that the substance became toxic due to standing,

as the author states that sometimes after passing through the autoclave, the solutions were allowed to stand for twenty-four hours. In support of this assumption, Goldblatt and Dennie,[20] experimenting with animals, showed that non-toxic solutions of sodium thiosulphate if allowed to stand for forty-eight hours, showed evidence of toxicity when injected.

Method of administration: The best results are to be had from the intravenous administration of sodium thiosulphate, although it can be given by mouth. McBride and Dennie[20] advise that it be given in not more than 20 c. c. of distilled water, with daily injections for four days and then alternate days for as many injections as may be necessary, in doses starting with 0.3 gms., and increasing the dose by 0.15 gms. daily. The authors state that there is no advantage to be gained by giving large doses at the onset, although it is non-toxic in doses up to 2.0 gms.

Conclusions

1. A case of neo-arsphenamine poisoning, characterized by ulcerative stomatitis, leucopenia, and nephritis with recovery following the administration of sodium thiosulphate, is reported in some detail.

2. A fourth and distinct group, namely, the agranulocytic, is added to the already existing classification of the blood dyscrasias arising as complications in the administration of arsenical compounds.

3. A brief discussion and a review of the literature pertaining to the various mechanisms which could conceivably be the cause of these arsenical blood dyscrasias is included, but no deductions are obtained from a review of these theories.

4. The use of sodium thiosulphate intravenously is the procedure of choice in the treatment of these cases, while the use of blood transfusion is only of value in those cases showing an anemia due to actual blood loss by hemorrhage.

BIBLIOGRAHY

[1]Dodd, K., and Wilkinson, S. J., J. A. M. A., 90: 663 (Mar. 3), 1928.

[2]Moore, J. E., and Keidel, A., Arch Dermat. and Syph., 4:169, 1921.

[3]Leredde, E., Rev. gen. de clin, et de thérap., 33: 33, 1919.

[4]Labbé, M., and Langlois, S., Bull et mém. soc. med. d. hôp. de Par., 43:786, s. 3, 1919.

[5]Aubertin, C., Monde méd., 36:885 (Nov. 15), 1926.

[6]O'Leary, P. A., and Conner, H. M., Am. J. Syph., 9:262, 1925.

[7]Kennedy, W. R., Canad. M. A. J., 19:439, 1928.

[8]Evans, F. H., Arch. Int. Med., 17:1, 1916.

[9]Wheelihan, R. Y., Am. J. Dis. Child., 35: 1932, 1928.

[10]Pouzin-Malègue, Mme., Bull. et mém. de soc. méd. d. hôp. de Par., 36: 1786 (Dec.), 1928.

[11]Smith, C. M., Arch. Dermat. and Syph., 11: 237, 1925.

[12]Schamberg, J. F., Arch. Dermat. and Syph., 11: 239 (Feb.), 1925.

[13]Moore, J. E., and Foley, F. E. B., Arch. Dermat. and Syph., 1:25 (Jan.), 1920.

[14]Selling, L., Johns Hopkins Hosp. Bull., 21:33 (Feb.), 1910.

[15]Rohner, F. J., Baldridge, C. W., and Hansman, G. H., Arch. Path. and Lab. Med., 1:221 (Feb.), 1926.

[16]Vedel M., Giraud, Mlle. M., and Giraud, M. G., Ann. de demat. et de syph., 4:712, S. 6, 1923.

[17]Schamberg, J. F., Kolmer, J. A., Raiziss, G. W., and Weiss, C., Arch. Dermat. and Syph., 1:235, 1920.

[18]McBride, W. L., and Dennie, C. C., Arch. Dermat. and Syph., 7: 63 (Jan.), 1923.

[19]Ravaut, P., Presse méd., 28: 73 (Jan. 28), 1920.

[20]McBride, W. L., and Dennie, C. C., J. A. M. A., 83: 2082 (Dec. 27), 1924.

[21]Groehl, M. R., and Myer, C. N., Therap. Gaz., 40: 691 (Oct. 15), 1924.

[22]Althausen, T. L., and Gunther, L., J. A. M. A., 92: 2002 (June 15), 1929.

[23]Kuhn, H. A., and Reese, H. H., J. A. M. A., 85: 1804 (Dec. 5), 1925.

[24]Young, A. G., J. of Lab. and Clin. Med., 3: 622, 1928.

[25]Frazier, C. N., J. A. M. A., 88: 537 (Feb. 19), 1927.

[26]Goldblatt, S., and Dennie, C. C., Am. J. Syph., 12: 369 (July), 1928.

REPORT OF A CASE OF UNDULANT FEVER*

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The patient, F. P., a bookkeeper, aged twenty-five, was born in Missouri and lived there up to six years ago. Following this, he was a tree surgeon, travelled extensively over the middle West and as far south as Arkansas. After that, until entry, he lived mostly in Louisiana, doing clerical work, and for three months before entry in Fort Worth, Texas, doing clerical work.

*Read before Glockner Staff Meeting in May, 1929, and again before the El Paso County Medical Society at their January, 1930, meeting.

While in Louisiana he spent most of his time in New Orleans.

He had chills and fever in childhood, but has had none since. He never had hook-worm disease. There is no history of tropical or sub-tropical diseases while in Louisiana.

He had measles, mumps, whooping cough, and chicken pox in childhood. In 1918 he had a mild attack of influenza. He had acute tonsillitis many times in two to three years about ten years ago, but without peritonsillar abscess. He has had no other acute illnesses in the past.

A sub-mucous operation under local anesthesia was performed in 1924. His arm was fractured twice in childhood. He has had severe injuries. Although the eyes have hurt him while reading for some time, ophthalmological examination is said to be negative. There is a chronic nasal discharge with frequent colds and exacerbation of the discharge.

The patient's appetite is good. His bowels have been constipated off and on since childhood. He has had to take laxatives once or twice a week or less. He had bleeding hemorrhoids in 1922 which were painful, but subsided. He has had no diarrhea, jaundice, nausea or vomiting; nor any hematemesis.

The patient denies venereal infection by name and symptom.

The patient has never had any association with goats, nor has he drunk goat's milk knowingly. He has never lived on a ranch or farm. However, he says that in Fort Worth, goat's milk is sometimes substituted for cow's milk.

The patient's habits are fairly irregular. He usually gets seven hours' sleep, but not always. He drinks as many as eight to nine cups of coffee a day before entry with five or six drinks of Coco Cola a day. He smokes twenty cigarettes a day. He takes no drugs, but "quite a bit" of alcohol.

Present illness

About two years ago the patient was fluoroscoped because of constipation. The diagnosis, as given to him, was "stasis of the bowels." At that time he had a slight, dull, nagging pain almost constantly in the right lower quadrant. During the course of fluoroscopy the radiologist noted that both apices were clouded and advised him to go to a chest specialist, which he did. At that time he felt perfectly fine; he had no cough or expectoration, night sweats or pain in the chest. He had had a little loss of weight but does not know how much. For two months he went to bed every night immediately after dinner and gained ten pounds in weight rather promptly. Beginning about the same time, he had some fatigue off and on, or rather easy fatiguability, not particularly worse in the afternoon. He had no feverish feeling.

A year before going to Texas, fifteen months before admission, he had considerable pain in the upper part of the left chest with some pain down the left arm; no real catch with breathing but made worse by breathing. He had to remain abed for a while. He does not know if he had any fever. The chest was not strapped. Since then he has had a few occasional pleuritic-like pains on both sides, always worse on the left.

Three months before entry shortly after beginning work in Fort Worth, he felt extremely fatigued in the late afternoon and evening and thought he had slight fever at these times. Had no cough. The appetite was normal but he was losing weight slightly. He had to go to bed after dinner almost every night. On the eve of Labor Day, after the usual holiday celebration, he felt extremely ill; ached in the chest and had a temperature of 101° F. He consulted a doctor, who examined him and had x-rays taken. On the x-ray a diagnosis of pulmonary tuberculosis was made. He came to Colorado Springs and entered Glockner immediately.

At no time has there been hemoptysis, dyspnea, orthopnea or edema.

The family history is irrelevant.

Physical examination

The patient is poorly nourished (weight: 145½ lbs.) apparently anemic, and quite markedly cyanotic; he is quite pale. Examination of the nose shows quite a marked perforation on the anterior part of the septum (right) following sub-mucous resections;

the right middle and inferior turbinals are quite markedly congested. The right middle turbinal impinges against the septum. There is a good deal of secretion in the middle meatus. The left middle turbinal impinges against the septum. There is a good deal of crusting in the left middle meatus; the middle and inferior turbinals are hypertrophied and pale.

The teeth are in poor condition; several pulpless. There is a moderate amount of gingivitis, especially of the upper gums.

The tongue is coated, moist and tremulous.

The tonsils are small, atrophic, embedded, inflamed. Neither exude anything on pressure. There is a moderate amount of posterior dropping.

The pupils are large, equal, slightly irregular, and react promptly to light and to accommodation.

Post-cervical nodes are slightly palpable. Glands of the anterior triangle of the neck on both sides are slightly enlarged.

The vessels are soft. The pulses are equal, synchronous, irregular, with good tension and fair volume.

The finger nails are slightly cyanotic, slightly curved, longitudinally fissured. The left shoulder is held slightly higher than the right. There is some depression above and below the right clavicle and slight lagging on the left; the muscular tenseness is equal on both sides.

Glands in both axillae are palpable, the size of peas, discreet.

There is a left lateral scoliosis of the lower dorsal and upper lumbar region.

Examination of the heart reveals an accentuated second sound at the pulmonary valve and an occasional premature systole.

Blood pressure is 106/68. In the right lung a shower of crepitant râles appear on coughing at the base in the axillary line.

Impaired resonance and prolonged high pitched expiration is found on the left to the third rib. No physical signs are found from behind.

On examining the abdomen the spleen is both palpable on deep inspiration and enlarged on percussion.

The Wassermann reaction is negative.

The x-ray report states that the apices are shaded but do not appear active. There is considerably increased density at the hila, especially on the right where the clouding extends into the area about the hilus and down to the cardiophrenic angle. There are a few adhesions to the diaphragm and some widening of the mediastinal shadow. While there is no definite evidence of an active tuberculosis, the shadows about the hilus suggest the possibility of a non-tuberculous lung infection.

The urine was negative throughout. The sputum, on repeated examinations, showed no tubercle bacilli, but did at times show spirochetae and fusiform bacilli.

The blood, on first entry, September 21, 1928, was 80 per cent hemoglobin with 4,320,000 red cells, 5,200 white (polys 53 per cent, small lymphs 30 per cent, large lymphs 15 per cent, large mononuclears 0, eosinophiles 2 per cent).

On February 27, 1929, after the fever had started, the hemoglobin was 82 per cent; there were 4,420,000 red cells and 8,600 white (42 per cent polys, 44 per cent small lymphs, 14 per cent large lymphs, large mononuclears 0, eosinophiles 0).

During the entire time, he had an unusually large percentage of mononuclear cells, but these increased quite markedly after there was clinical evidence of undulant fever. This is one of the reasons I have for suspecting that this fever was contracted here and not elsewhere.

The blood culture, which was done on March 11, 1929, showed a gram-negative nonmotile bacillus, which grew after five days. It agglutinated the patient's serum and does not ferment glucose or lactose. The patient's serum was agglutinated in titres of 1 to 80, 1 to 160, and 1 to 320, with cultures of brucella abortus and cultures isolated from the patient's blood. It would not agglutinate cultures known as brucella melitensis, A and B. Agglutination experiments made recently (November 27, 1929,) on the patient's blood did not agglutinate brucella abortus.

Treatment

At first I kept this man in bed and treated him symtomatically. But there appeared in

the literature various remedies, and the one that appealed to me most was the administration of autogenous vaccine, so we had one prepared from the organism which was recovered from his blood and had that in a dilution of 2,000,000 per c. c. We started with small doses, but then I noticed that best results were obtained by giving big doses and causing a severe reaction. On May 29, following an injection of 500,000, he felt chilly; his aches, which he had had originally, were reproduced, his maximum temperature was 102°.8 F., with a corresponding rise of pulse to 120. This temperature subsided after three days, and his temperature has remained normal ever since.

Various other remedies have been suggested, among them injection of acriflavine base intravenously. This should be given in doses of .01 gram per kilogram of body weight.

Discussion

The occurrence of undulant fever has been widespread. Cases have been reported from practically every state in the Union. The original cases reported from Texas, and other cases that have been reported show, on culture, not the brucella melitensis A or B but the brucella abortus.

In a survey of the herd cattle of Connecticut, McAlpine and Slanetz stated that the dairy herds of the state showed that approximately 90 per cent harbored the brucella abortus. In as much as only 60 per cent of the marketed milk of Connecticut is pasteurized, the opportunity for infection with bovine brucella must be great, and we may almost assume that the bovine brucella is non-pathogenic for man. Many of our infections very likely fall in the porcine group.

Undulant fever, furthermore, is especially interesting to the workers here, because so many with an unexplained fever and with some indefinite findings in the lungs are sent with a diagnosis of tuberculosis, when the real cause may be undulant fever. Bellinger and Levine reported an outbreak in May, 1928, where quite a few of the inmates were affected with this disease.

It is questionable if agglutination tests are sufficient to establish a diagnosis without a recovery of the organism from the blood. Cases have been reported, who have never given any symptoms of undulant fever and who are not sick, whose blood agglutinates the organism in as high a titre as 1 to 640.

PUBLIC HEALTH NOTES

EDITOR J. W. AMESSE, M.D.

A children's hour suggested for private physicians

A new plan for cooperation by private physicians in efforts for disease prevention has been proposed to the county medical societies of New York City by the health commissioner. He suggests that each physician of the city set aside a portion of one day every week as a "children's hour" when he will see and examine well children, advise as to their feeding, general care, and hygiene, and administer vaccination and other similar treatments aiming to keep the children in health and immune to preventable diseases. The commissioner suggests that each physician send out cards describing the service offered, announcing the time for the children's hour, and stating his fee, the fee to be a fixed amount set by the physician himself. The commissioner believes that such a plan would encourage parents to bring their children to the physician to keep them well instead of consulting him only after sickness has developed. He also thinks that such a plan would bring to the offices of the private practitioners many children whose parents are able and willing to pay a moderate fee but who now take them to health centers or private clinics because they think that the physicians will charge more than they are able to pay for health supervision.

Birth and infant mortality rates for 1929

Provisional figures in regard to birth and infant mortality rates for 1929 were recently issued by the Bureau of the Census. The figures show a decrease of 3.6 per cent in the number of live births in the birth registration area of the United States, exclusive of Nevada, New Mexico and Utah, as compared with the same area in 1928. Four states,

Arizona, Michigan, Montana and Tennessee, of the forty-three states for which figures are available for both years report an increased number of births in 1929.

The infant mortality rate for 1929 is 67.3 as compared with 68.8 in 1928. The highest rates for the states included in the area for both years are 133.3 for Arizona, 91.4 for Colorado, and 90.9 for South Carolina. The lowest rates are 49.5 for Washington and 47.9 for Oregon. Of the cities given, the highest rate was that of Nashville, Tennessee, 98.1, and the lowest that of Portland, Ore., 42.5.

Health of preschool children

The National Congress of Parents and Teachers has announced a summary of its 1929 summer round-up of children, the purpose of which is to have those children entering the school for the first time in the fall as free from remedial physical defects as possible.

The summary shows that 1,520 local units representing forty-two states carried on the round-up program. The total number of children examined was 56,865. Defects reported by the physicians numbered 109,606, and the number reported as corrected was 26,036. More than half the children examined had defects of the teeth, and more than one-third had diseased tonsils.

Diphtheria decreases in New York City

With more than 200,000 children immunized in New York City, in 1929, the health commissioner announces that deaths from diphtheria in that city for the first quarter of 1930 dropped to the low figure of 82, a reduction of 56 per cent as compared with the average for the past six years. The campaign began January 1, 1929. In the last six months of the year, when the effects of the immunizations made during the first six months became fully operative, there were 137 deaths as compared with a total of 325 deaths during the first six months of the year. Not one of the 137 who died of the disease had taken the complete series of toxin-antitoxin treatments and the Schick test to determine immunity.

LIBRARY NOTES

EDITOR J. J. WARING, M.D.

BOOK REVIEWS

Mental Aspects of Stammering, by C. S. Bluemel, M.A., M.D., L. R. C. P., M. R. C. S., Clinical Instructor in Neurology at the University of Colorado School of Medicine. Baltimore, Williams and Wilkins Co., 1930. Pp. 152. Price, $2.50.

While reading the other day our favorite weekly review we came upon the following limerick:

> There was a young lady of Ryde
> Who ate some green apples and died.
> The apples fermented
> And filled the lamented
> With cider inside 'er inside.

and thought at once of Dr. Bluemel and his disciplinary classes for young stammerers. "As the child improves in speech control, attempts are made to embarrass him . . . Meanwhile his part of the game is not to get flustered." We can see an advanced student pausing gravely, clicker in hand, while he counts cautiously the cider inside 'er before he launches on the last line. Seriously, though, it must be great fun to be a stammerer in one of Dr. Bluemel's groups; they have such attractive toys and pictures, such diverting games.

The whole system of instruction is based on the theory for which most cogent arguments are provided that stammering is not a disorder of the speech organs but an impediment of thought:

> There can be no congenital defect of the speech organs when the stammerer speaks fluently for the first several years of his life. There can be no organic defect when stammering results from imitation or association. There can be no physical deformity when any one of several causes—fright, association, imitation—can produce any type or any combination of types of speech disturbance.

Moreover thought impediment is shown not only by different types of speech disturbance, but also by strictly analagous disturbances of other motor mechanisms: in swallowing, in breathing, or in walking or in writing. The psychological mechanism of these impediments is developed with logic

and with masterly simplicity by the author of this little volume, so that the veriest tyro can follow his argument. The practical instructions for treatment in the second half of the book are equally clear and enriched by a wealth of illustrations so that one fears that the reader will imagine the treatment of stammering to be easier than it really is. The author has plainly striven to write for the educator rather than for the psychiatrist. The former will succeed in many cases with no more than the methods here outlined. In other cases treatment will have to be individualised and the class discipline supplemented by a more fundamental treatment of the emotional life of the sufferer such as only the psychiatrist can afford. Within the scope which Dr. Bluemel has allowed himself, he has produced a book that has no serious competitor.

J. ROSSLYN EARP.

Neuritis and Neuralgia. By Wilfred Harris, M.D., Cantab., F. R. C. P., London. Senior Physician to St. Mary's Hospital and to the Hospital for Epilepsy and Paralysis, Maida Vale. 8 vo. Cloth. Price, $4.00. Pp. 418, with 45 illustrations. Humphrey Milford: Oxford University Press. Original Publications 1926.

In the present monograph the author has presented a much needed contribution in the field of the peripheral nerve disorders, which has been clouded for a considerable length of time.

The devotion of Dr. Harris to the treatment of neuralgias has been known and as remotely as 1914 when, as a guest of the Section of Nervous and is followed by a discussion and differentiation address embodying his experiences in alcoholic injection in trigeminal neuralgias.

As an introductory chapter, in which the attempt is made to classify peripheral pain, the author discusses the various forms of multiple neuritis including the isolated or special forms.

Then neuralgia is discussed and the controversy with reference to the course of the taste fibres is given attention.

Herpes Zoster (shingles) receives consideration and is followed by a discussion nad differentiation of the neuralgias. Migraine, facial spasms and facial paralysis are also considered.

Chronic diseases of the spine with peripheral complications are briefly treated and vasomotor disorders, including Intermittent Claudication, Raynaud's disease, etc., and finally, in the concluding chapter, neuro-fibrositis, muscular rheumatisms and sacro-iliac sprain close the volume.

The style is unusually clear and readable, adequately illustrated and completely indexed. The typographical work is up to the usual standard of the Oxford Medical Publications. The work should be a valuable addition to the library of the neurologist as well as the general practitioner.

G. A. MOLEEN.

Handbuch der Kindertuberkulose unter Mitwirkung von Fachgenossen, Herausgegeben von Professor Dr. St. Engel under Professor De Cl. Pirquet. Vol 2. 1930.

The second and concluding volume of the Engel-Pirquet treatise on childhood tuberculosis possesses an excellence fully equal to that of its companion volume. In size, it almost matches its mate, comprising as it does, some 700 pages, profusely illustrated. Among its collaborators we miss the familiar and imposing array of names found in connection with the previous work. However, even a cursory review affords convincing proof that each of the thirty odd co-authors is master of the particular subject that he is called upon to discuss. Among the more familiar names encountered are Franz Hamburger, Arthur Schlossman, and E. Feer. Participating in the preparation of the second volume we find not only members of the German profession, but many of the other European countries likewise represented. And it is both flattering and gratifying to note that the United States has not been overlooked. Abt and Robert Watson of Chicago and Bela Schick of New York constitute the American representation. And France, too, has been generously dealt with in the matter of space allotment, an evidence that the passions and prejudices engendered by the late war are no longer permitted to blind vision or judgment.

I shall consider, in brief, the more important phases of childhood tuberculosis discussed in the present volume.

Diagnostic methods, other than clinical, in all their diversity are comprehensively covered. Again and again the inestimable value of tuberculin is stressed. The morphology of the blood, especially considered in the light of the classification proposed by chilling, serum reactions, the flocculation test, constitute interesting chapters. Emphasis is properly focussed upon the diagnostic significance of the familiar triad; contact with the tuberculous, the positive tuberculin test, and the x-ray.

Prognosis, a phase of the subject usually dismissed in a few brief lines, is exhaustively treated from every angle, forty pages having been allowed for its discussion.

Under the heading of prophylaxis, acknowledgment is made of the pioneer work of Webb and Gilbert of Colorado. The Calmette method of protective inoculation, already extensively practiced in France, and in a less degree in other European countries, is considered in an unbiased spirit. The conclusion reached is that it may be regarded as a procedure of considerable value under certain circumstances but that it would be premature to render final judgment upon its worth.

Well nigh half of the space in the book is taken up with the subject of therapy, in its multifarious ramifications. Excellent chapters on pneumothorax and phrenicotomy are to be found. Thoracoplasty, justly considered a most formidable procedure, to be undertaken only when less drastic measures have proved ineffective, has its indications. The principal objections to its more extended use in childhood, are the fear of a complicating aspiration pneumonia, chest deformity and interference with normal body growth. Climatology is widely discussed, and it would appear that many parts of Europe, whether mountainous, low-lying or coastal, lend themselves to the successful management of certain types of the disease. In this section, we find Abt's article on the institutional care of tuberculous children in the United States, setting forth, mainly in tabular form, the facilities afforded by every state in the

Union, and also the methods of therapy in vogue. Out of some 7,000 beds available one is chagrined to discover that only thirty-eight are allocated to Colorado. One also learns from this chapter that artificial pneumothorax is not a neglected form of treatment in this country. In collaboration with Robert Watson, Abt is also the co-author of the chapter on the tuberculosis mortality in childhood in the Unlted States. A full consideration of the management of tuberculosis of bones and joints concludes this exceedingly lengthy section.

Chapters are also devoted to a discussion of the sociologic relationships of tuberculosis in childhood. A special chapter appears upon tuberculosis as it affects the new-born, the infant, and the school-child and also upon the legal safeguards adopted in different countries in the interest of the tuberculous child. One is particularly impressed by the sane and eminently practical regulations enforced by Denmark. An extensive chapter is written by Pehu and Dufourt upon the contributions of the French to the study of tuberculosis with special emphasis upon the work of Grancher and Calmette.

The concluding chapter is contributed by Bela Schick upon tuberculosis in American children, with its special manifestations and peculiarities in the colored race. He finds the mortality rate among negro children at certain ages, six times as great as in the white—a disgraceful condition which can and should be speedily corrected.

This work embodies the most advanced and progressive thought on the subject of childhood tuberculosis. I know of no other publication that presents so complete and authoritative an exposition of this important subject. I recommend it to the attention of the profession with genuine pleasure, confident that it will come up to the highest expectations of the reader and that it will fulfill every need of both the general practitioner and the specialist. EMANUEL FRIEDMAN.

Arterial Hypertension. By Edward J. Stieglitz, M.S., M.D., Assistant Clinical Professor of Medicine, Rush Medical College, Univ. of Chicago; Attending Internist, Chicago Lying-in Hospital, Assistant Attending Physician, Presbyterian Hospital. Foreword by Rollin T. Woodyatt, M.D., Clinical Professor of Medicine, Rush Medical College, University of Chicago, Chairman Department of Medicine, Attending Internist, Presbyterian Hospital. With 21 Illustrations. Paul B. Hoeber, Inc., New York. 1930.

Vascular hyptertonus is, because of its commonness and resistance to treatment, a subject which cannot fail to stimulate serious thought. The author presents the subject clearly and concisely. While much of the book consists of information which is well known, it is arranged in such orderly fashion that the reader may, by skipping the obvious, profitably review the entire subject at one sitting.

The gist of the author's thought is: (1) that hypertonia is due to chemical or nervous stimulation, (2) that fatigue of the arteriolar musculature heightens the tonus and increases this susceptibility, (3) that exhaustion follows fatigue, in which case certain muscle fibers in exhaustion degenerate to be replaced by collagenic fibers. In other words irritation produces arteriolar hypertonia, which in turn gives rise to fatigue and later exhaustion with ultimate fibrosis and sclerosis. If these hypotheses are true, the author has succeeded in making a perplexing subject surprisingly simple. He is consistent throughout the entire treatise basing all prognosis and treatment on these concepts.

He lists some thirty types of irritants which he considers the initiating causes. Fatigue, he considers the self-perpetuating factor and sclerosis the cause of fixed hypertonia.

His belief in the use of certain drugs in a precise manner is as instructive as it is encouraging. He has a separate chapter on the subject as it influences, (1) cardiac reserves, (2) renal reserve, and also (3) its complicating pregnancy.

C. F. KEMPER.

Health Education for Public Schools and Teacher Training. Report of Joint Committee of the Nat. Ed. Assoc. and Amer. Med. Assn. Cloth, Octavo 251 pages. National Education Association, Washington, D. C., 1930.

This book gives a program for public schools and teacher training institutions, prepared under the direction of Dr. Thomas D. Wood, chairman of the Joint Committee of Health Problems in Education of the National Education Association and the American Medical Association. In addition to the seven appointed by the American Medical Association there were four physicians on the Committee of the N. E. A., and on sub-committees of the Technical Advisory Committee there were eleven others. So the work represents the cooperative study and judgments of twenty-two educated and actively interested members of the medical profession; with a larger number of educators and experts in other lines.

It contains lists of the expert specialists, from various societies and institutions, who were concerned in its preparation, and a statement of the aims of health education. Then there are twenty pages on The Trend of Health, What the Schools Can Do, and the Meaning of Health. But the greater part of the book is occupied by three chapters on: Essential Subject Matter for the Teacher, 80 pages; Educational Problems, 42 pages; and Suggestions for Courses of Study in Health Education, 80 pages. There are also many bibliographies and an index. It is a book that any physician in general practice, particularly in rural communities and small towns, where he will be regarded as an important advisor of school authorities, should be acquainted with. Any physician can read it with profit, and keep it as a book of reference.

It is well to see familiar things from a new point of view. This is especially true in medical practice. Our patients include children and their parents, teachers and pupils, the most intelligent part of the community. These people come to us for advice with regard to disease and health. We can hardly give it effectively, unless we understand how much each patient knows about health; and in what respects he is likely to be ignorant, or misinformed. Much of our knowledge of our patients' thought of health, or disease, comes to us in bits from day to day—an important part of our exeprience. But new light may be thrown on the popular knowledge of health matters by a book like this. And in future this program will have much to do with shaping popular ideas about health. A small part of the book deals with the health of the eye. But it is all devoted to a program of education for health; that might be enforced on every child attending school, with great benefit to the child, to the family to which it belongs, and to the community.

It should be noted that one of the original members of the Joint Committee, actively interested in its work until the time of his death, was the late Dr. R. W. Corwin of Pueblo.

EDWARD JACKSON.

Secretarial Notes and Comment

Edited by Harvey T. Sethman, Executive Secretary

THOSE LATE PROGRAMS

COMPLAINT, amply justified, was heard at the recent Annual Session against the late delivery of programs. After the Session it was discovered that a number of members had not received their mailed programs until the day the Pueblo meeting was adjourning.

Unavoidable circumstances delayed mailing the programs from the Executive Office until a few days before the opening of the session. But even then, programs were mailed in ample time to have reached every member before he left his home for Pueblo.

Vigorous complaint was lodged with the Denver postmaster immediately following the meeting. Verbally the Postoffice Department has extended its sincere apology, and has pointed out that the department was heavily burdened at that time with political mailing in connection with the primary elections. A written explanation has also been offered, which the Executive Office believes appropriate to publish in view of the great inconvenience caused members by the delayed programs. The letter in full follows:

Sept. 20, 1930.

Mr. Harvey T. Sethman, Executive Secretary,
Colorado State Medical Society,
Denver, Colo.
Dear Sir:

With further reference to your communication of September 12th, relative to delay in delivery of programs for the convention of the Colorado State Medical Society, held recently in Pueblo, Colorado.

It would appear from our investigation that the programs destined for out-of-town delivery were promptly dispatched, as evidenced by the fact that copies were delivered in Woodmen, Colorado, a suburb of Colorado Springs, on Sunday, the 7th—although addressees residing in Colorado Springs as indicated by the statement from the postmaster at that office which is herewith attached, were not delivered until Tuesday.

Under ordinary circumstances, mail of the third class does not receive as expeditious handling as first-class mail and as explained by the postmaster at Colorado Springs on account of the volume of mail of the first class to be handled on Mondays, these programs were held over for delivery on Tuesday.

The Postoffice Department makes an exception to matter of this class which has a time value rendering the mail of no value unless delivered within a certain period.

The copies of this program for delivery in Denver were not given proper treatment. The time value was such that delivery should have been made by carrier on Monday, Sept. 8th, at the latest. It would appear, however, that they were held over until Tuesday and in some instances until Wednesday morning on account of the volume of first-class mail to be handled on Monday and Tuesday.

This statement is not given in any way to excuse this office for the error but is simply intended as a frank explanation of the delay.

It is suggested that in the future when delivery is desired at a specified time on matter of this class that you have the mail sent direct to the Superintendent of Mails, Room 109, who will give it his personal attention, which will insure delivery within the time limit desired.

The annoyance to yourself and associates and members of your association is very much regretted and your action in bringing the matter so promptly to our attention is very much appreciated.

Yours very truly,
FRANK L. DODGE,
Postmaster.
By C. B. Watkins,
Assistant Postmaster.

REVISED BY-LAWS

PROCEEDINGS of the House of Delegates at the Sixtieth Annual Session in Pueblo will be published in the December issue of Colorado Medicine, as has been customary in past years.

However, the importance of one special act of the House deserves prior mention. That was the full revision of the by-laws.

The revised by-laws are now in the hands of the printer and before November first will be available in booklet form. Since the expense of mailing a copy to each individual member is large and probably unnecessary, this will not be done. Instead an ample supply will be sent to each Constituent Society's secretary, and a copy will be sent to each officer and committeeman. Others desiring copies may obtain them on request either from their county secretaries or by mail direct from the Executive Office.

The Executive Office wishes to urge members generally to read the new by-laws, and wishes to call them especially to the attention of county officers and members of committees. The committee system of the State Society has been generally reorganized, with a view to greater efficiency. The system of handling State Society funds has been placed on a more businesslike basis. The groundwork has been laid for a comprehensive system of Medical Defense. A general clarification has been effected to eliminate obsolete wording and to prevent conflict of sections. All this was effected with no change in the Constitution of the Society, through only a general revision of the by-laws.

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE AND HOSPITALS

PHYSICAL Therapy embraces the treatment of disease by physical measures in contra-distinction to medical and surgical procedures. It is used in conjunction with, and as an adjunct to, these latter procedures. Scientific investigations in the last few years have placed physical measures on an equal basis with drugs as effective curative agents. The physical measures that have been found to have certain therapeutic value, both by long clinical experience, and by laboratory research, include heat, light, water, electricity, massage, and exercise. The Department of Physical Therapy at the Colorado General Hospital is fully equipped for the efficient application of these measures. The following methods of treatment are used:

Radiant light and heat are obtained from a 1500-watt deep therapy lamp with a suitable reflector, and from portable radio-vitant applicators commonly called "bakers". These bakers are equipped with carbon or mazda bulbs and are adjustable for position, distance and strength of current, depending upon the part treated and the action desired. They are used extensively on the wards in the treatment of cases requiring prolonged sweating procedures or frequent applications, such as nephritis, uremia, burns, etc., as well as for drying casts. Heat is the ideal preliminary measure for massage and most electro-therapeutic treatments. Dr. Carl Sonne and others have called attention to the value of radiant heat, "not only for its heat value, but for its stimulating effect as well, and also to the fact that these luminous rays have considerable more penetration into the subcutaneous tissues than the infra-red rays of longer wave lengths, and is the form of heat indicated where deep penetration is desired." Infra-red rays are obtained from different sized lamps of standard makes.

Diathermy is perhaps the most popular form of heat, and, as its name implies, effects the deeper lying tissues. It is obtained from a large McIntosh high-frequency machine and a portable Victor machine of variable frequency. The portable machine can be taken to the patient's bedside and is used a great deal in treating cases of pneumonia. The results so far in the latter conditions have been very encouraging. It relieves pain and coughing, and promotes sleep and rest.

Moist heat for arm and leg cases in the form of whirlpool baths is an admirable substitute for radiant heat, and in selected cases is more advantageous. These baths furnish a combination of heat and gentle massage and improve local circulation effectively in conditions of peripheral nerve injuries, indolent ulcers and adherent scars, as well as in recent fractures immediately after the cast is removed.

The mercury-vapor or quartz lamps are used for the production of ultra violet or actinic rays. These lamps are of two types, air cooled and water cooled. The air cooled lamp is used for its biological effect. With it large areas of skin may be treated with a single exposure. It is used in the treatment of tubercular bone and joint lesions, rickets, herpes zoster, secondary anemias and many other diseases. The water cooled or Kromayer lamp is richer in short wave lengths and is used for its bactericidal effect. The window of this lamp may be pressed directly against the skin. It is used in the treatment of selected types of skin diseases, indolent ulcers, discharging sinuses, etc., and is often used in conjunction with the air cooled lamp. The dosage is given as requested, and first, second or third degree erythemas, are produced.

Besides the whirlpool baths already mentioned the hydro-therapeutic section is equipped with two electric light cabinet baths, the Mott control table, and with overhead and circular showers. From the control table the Scotch douche, and jet and fan douches, are obtained. Hydro-therapy is prescribed as a tonic, or for the purpose of elimination.

The electrical equipment consists of a Morse-wave generator for galvanic and sinusoidal currents, a Wappler wall plate from which both galvanic and faradic currents are obtained, as well as the lamps and high frequency machines already referred to. The galvanic, faradic, and sinusoidal currents are used to stimulate nerves and to produce muscular contraction. The galvanic current has distinct polar effects. It is used to relieve pain and also for medical ionization which is the introduction into the tissues of medical solutions. Zinc ionization is much used in the treatment of chronic suppurative otitis media. Both galvanic and faradic currents are used in testing the reactions of muscle and nerve to determine the presence of the reaction of degeneration in cases of paralysis. The high frequency current from which diathermy is derived is used for auto-condensation, and also for electro-coagulation and electro-desiccation, which are used extensively by the doctors from the Dermatology Department for the removal of epitheliomas, angiomas, spider nevus, warts, moles and other skin blemishes. A radio frequency machine, or so-called Radio-Knife, is used in the operating room for major operations requiring electro-surgery.

Massage is one of the oldest forms of physical therapy. It is the scientific manipulation of the body tissues. Various manipulations are used, such as stroking, kneading, etc. The forms indicated and prescribed depend upon the underlying pathology of the part treated and the results desired. The part to be treated is prepared by heat in some form, either by exposure to radiant heat until it is thoroughly reddened, or by immersion in whirlpool baths at a temperature of 110 degrees for twenty minutes. Anything that will flush the part with blood greatly assists in making possible massage and manipulation that would otherwise be too painful. The most common types of cases treated by massage include fractures, sprains, dislocations, stiff joints, peripheral nerve injuries, flaccid and spastic paralysis. Definite directions are needed in the treatment of recent fractures regarding the removal of casts and splints, and the amount and kind of massage and exercise to be given.

Active, passive, resistive and assistive exercises are used in the development of power and mobility of muscles and joints with impaired function, following disease or injury. Corrective exercises and remedial gymnastics are valuable adjuncts in the treatment of postural defects, scoliosis, lordosis, and "weak feet". In these and most cases of paralysis, the physiotherapist teaches some member of the family the essential features of physical therapy to be administered by them when the patient is from out of town. These

patients usually report back at stated intervals to the doctor in charge of the case, who observes progress and guides treatment to its desired end.

Careful combination of these physical measures is necessary to secure the best results. Heat, massage, muscle re-education, and electrical stimulation are usually ordered for paralysis; and heat, massage and exercises for fracture cases. There can be no routine treatment, however, as each case is a law unto itself. The aim of Physical Therapy is to shorten the period of disability, prevent a great many permanent deformities, and make the end results of treatment more favorable.

The Department of Physical Therapy at the Colorado General Hospital has been in operation since June 1, 1926. It is on the ground floor within easy reach of the wards of the hospital for wheel-chair and bed-patients, and equally so for the reception of patients derived from the Out-Patient Department and from the Colorado Psychopathic Hospital. It is well lighted and ventilated and the equipment of the department is modern and up-to-date.

There is a main treatment room, where one physiotherapist keeps as high as six patients simultaneously under treatment, as well as three smaller rooms and a large hydrotherapy room with five dressing rooms. Connecting these is a wide hall, where, by the use of portable screens, two or more bed-patients can be treated at the same time.

The Physical Therapy Department is a reference department only. Cases are referred only after careful physical and laboratory examinations have been made. A requisition sheet corresponding in size to the other forms used, precedes the patient to the department. It contains the patient's name, serial number, address, clinical diagnosis, x-ray findings and treatment prescribed. A list of all the treatments given and a space for remarks are on the blank to facilitate the work of the physician ordering the treatment. This sheet is kept in the patient's chart. The attendance and progress notes are filled in by the physiotherapist. Out-patients return at stated intervals to the department from which they were referred, for re-examination and further suggestions for treatment. All patients are discharged when there is no further progress.

It is often possible to discharge patients from the hospital after the primary medical and surgical treatment has ceased, and still have them continue their physical therapy treatment, which may be necessary for several weeks, through the Out-Patient Department. This is an economic gain to the hospital, as by shortening the patient's stay, a given number of beds can accommodate a larger number of patients, indirectly increasing the bed capacity of the hospital.

The attendance in the department is greatest during the winter and spring months, when one physiotherapist treats from twenty-five to thirty patients a day and the number of treatments average around 850 a month.

The types of cases are varied, and, with increasing interest on the part of the staff, are being augmented in number and variety. Patients urgently needing treatment to shorten their time of disability and to secure functional restoration are given preference.

The department is used as a teaching center and also for research work.

It must be remembered that physical therapy has its limitations, and that it is only an aid and an adjunct, though often of prime importance, to other medical and surgical procedures.

For most injuries and many medical cases some form of physical therapy is prescribed and found helpful, and it is a backward hospital today which has no department of physical therapy.

It is the duty of the physiotherapist intelligently to carry out the prescriptions given by the doctors, and not to diagnose, prescribe or in any way to experiment in the treatment of disease.

MARGUERITE COLLINS.

MEDICAL SOCIETIES

This department of Colorado Medicine is set aside for reports of recent meetings, announcements of future meetings and accounts of other important activities of the county and district societies, composing the Colorado State Medical society. Every meeting of every local society should be reported. If your society is not represented, see that your secretary reports the next one, or that some other member is appointed to the task. Other societies want to know what your society is doing.

Larimer County Medical Society

The September meeting of the Larimer County Medical Society was held at the Armstrong Hotel, Fort Collins. Following a dinner, papers were read by Drs. H. I. Barnard and Atha Thomas of Denver. These were accompanied by slides and x-ray films. A description of an interesting case was given by Dr. Stanley of Windsor. Discussion was led by Dr. Kickland and followed by Drs. Carey and Haughey. Attorney Fancher Sarchet of Fort Collins gave a short talk on the relations between the legal and medical professions.

A paper entitled "Publicity for the Physician" will be delivered before the October meeting of the Larimer County Medical Society, to be held at 6:30 p. m. October 1 in the Northern Hotel, Fort Collins. Dr. J. A. Matlack of Longmont will be the essayist. An additional paper on "Aviation Eye Tests" will be delivered by Dr. M. J. Stewart of Loveland. All members of the State Society are cordially invited.

LOWELL LITTLE, Secretary.

Northwestern Colorado Medical Society

The annual business meeting of the Northwestern Colorado Medical Society was held September 18 at Hayden, Colo. The following officers were elected for the ensuing year: President, Dr. B. M. Bailey of Mount Harris; Vice President, Dr. W. S. Fleming of Phippsburg; Secretary-Treasurer, Dr. Duane Turner of Oak Creek.

A banquet in the high school building preceded the meeting. The meeting was addressed by Dr. Turner and several case presentations were made by Dr. E. L. Morrow and Dr. Bailey.

DUANE TURNER, Secretary.

THE COLORADO OPHTHMOLOGICAL SOCIETY

March 15, 1930

DR. E. R. NEEPER, PRESIDING

Excessive tenotomy

Dr. W. H. Crisp showed a woman, thirty-two years of age, who a good many years ago had had a tenotomy done on the right eye on account of convergent strabimus. There was a complete loss of rotation. She was now unable to move the right eye toward the left beyond the median line. The movements were normal in all other

respects. Her refractive correction was R. + 1.00 sph. +1.25 cyl. ax. 75° L. +1.25 sph. +0.75 cyl. ax. 105°. The corrected vision of the right eye was 20/20, that of the left 20/48, and yet, apparently as the result of limitation of motion in the right eye, the patient fixed with the left eye and had no use of the right eye. Should an attempt be made to find the right internal rectus and to advance it as a first step toward obtaining parallelism of the two eyes?

Discussion: Dr. Edward Jackson's impression was that, inasmuch as this case was definitely a muscle fault, it would be advisable to operate. He suggested that it might be difficult to find the cut end of the internal rectus. Therefore by using a portion of the superior and inferior rectus and transplanting them to the point of insertion of the internal rectus, the action of the latter muscle would thereby be supplied. This operation lends itself to better advantage where the internus is involved rather than the externus. He advised the use of a large conjunctival incision parallel to the cornea, about 12 mm. in length. He stressed the point that there has been no general appreciation or adoption of the use of a portion of the superior and inferior recti, in these cases of extreme convergence.

Dr. C. E. Walker, believed that the usefulness of this operation is not appreciated. He stated that even if the cut muscle is not found that the remaining connective tissue atrophy will be found and this may be reattached. He cautioned as to not promising a perfect result in this case and that an additional operation might be needed.

Retino blastoma

Dr. P. Thygeson showed R. Q., aged two years. The child was brought to the out-patient department of the Colorado General Hospital by his parents who had noticed a peculiar yellow reflex in the left pupil. This had been noticed last fall but had not alarmed the parents until recently, when the back of the eye seemed visible through the pupil.

A history was given of a severe cold at the age of seven months, accompanied by a fever of 102° lasting from three to four days, and followed by a flaccid paralysis of the left shoulder muscles. The condition was diagnosed shortly afterward as anterior poliomyelitis by the neurologic clinic. An additional history of a recent severe pneumonia was given, with good recovery. The Wassermann was negative.

Discussion: Dr. Frank R. Spencer was in favor of immediate enucleation.

Dr. Edward Jackson suggested that in a case of this type pseudo-glioma should be kept in mind. However, he did not feel that this was a pseudoglioma and advised immediate enucleation. While the patient was under the anesthetic he advised a careful examination of the other eye.

Healed trachoma

Dr. C. A. Ringle exhibited a patient, who was led into his office twenty-four years ago. He was then eighteen years of age. He had pain, photophobia and drooping of the lids. On everting the lids the conjunctiva rolled out in a large mass of spawnlike granulation with the characteristic sago grain follicles of trachoma. There was a dense pannus over both corneae. An expression operation with ring forceps was performed, first making free incisions into the thickened tissues of the conjunctival sack.

The after treatment was carried on most assiduously. It consisted of grattage and the application of 2 per cent silver nitrate solution principally; and while the pannus persisted, the use of atropin. In three months, the treatment was discontinued. At the present time the vision was: O. D.—12.00 1.00 ax. 30°=20/40. O. S.—11.00 —1.00 ax. 180°=20/70. A 2° prism, base in, was added. Eversion of the lids showed a minimum of scarring of the conjunctiva. Slight remains of the pannus persisted.

Discussion: Dr. Edward Jackson expressed his appreciation of the value of the exhibition of such a case.

Dr. C. E. Walker believed that the case must have been one of follicular conjunctivitis and not trachoma.

Dr. P. Thygeson stated that Dr. Richards of the Indian Service believed that trachoma can be resolved completely without scarring.

Dr. Frank Spencer reported a case he has had under supervision for twenty-five years. There has been practically complete recovery with very little scarring. Dr. Spencer was of the opinion that such cases as those under discussion must be mild for such an end result.

Dr. George Strader has seen many cases with very little or no scarring. He attributed such results to cases diagnosed early and upon whom proper treatment had been carried out.

Dr. Ringle, in closing, stated that he appreciated the discussion and that he had presented the case to provoke such a controversy as to whether or not cases of trachoma can be resolved without leaving any clinical evidences. He re-emphasized that this patient had a definite pannus and that the patient was operated at the correct stage of the disease, that is, before any scarring occurred and before the follicles had become encysted. Dr. Ringle said that he literally wore out the folds of the conjunctiva in stripping them. He attributed the perfect clinical result to the thoroughness of the treatment, the youth of the patient, and the length of time that had elapsed which had sufficed for complete healing and restitution of tissue.

Intraocular foreign body

Drs. William C. and William M. Bane showed Mr. W. R. W., aged twenty-six, who was injured on February 24, 1930. A piece of steel struck his left eye, as he was striking metal with a hammer. When seen by a doctor the next morning a little rust was cleaned out of the eye. He had the impression that a foreign body had not penetrated the eyeball.

When first examined by Drs. Bane on February 26, 1930, the eye ball was congested and there was edema of the conjunctiva, a small linear scar was seen in the upper nasal portion of the cornea.

The x-ray report was negative for an intraocular foreign body. A subconjunctival injection of cyanide of mercury with atropin was given.

On February 27, 1930, the eye showed considerable reaction, the pupil was only half dilated, and an exudate was present on the anterior capsule. The next day the pupil was wider, there was noted an opacity of the anterior capsule of the lens in the lower nasal quadrant. It was greyish white, and at first did not suggest trauma. There was some pain in the eye for several days and it was kept under atropin.

On March 3, 1930, the eye was examined by Dr. Strickler with the corneal microscope, and it was his opinion that the wound in the cornea extended through into the anterior chamber. It was thought advisable to have another x-ray. It was now reported that a foreign body measuring 1x1.5 mm. had been localized in the region of the opacity in the anterior lens capsule.

On March 4, 1930, the small particle of steel was first drawn into the anterior chamber and then removed after an incision had been made into the anterior chamber. A pair of scissors was inserted and the magnet applied. A part of the iris became entangled and had to be excised.

The vision was 5/60 and has not changed since the time of the injury. Two more injections of cyanide have been given. The opacity in the lens is gradually increasing. There is involvment of the posterior capsule of the lens. The tension is below normal.

Discussion: Dr. William H. Crisp mentioned a case, where he had applied the magnet directly to the keratome which had been used to make the incision, and thereby removed a foreign body resting on the iris surface without loss of aqueous.

Dr. William M. Bane, in closing, explained that he did not attempt replacement of the iris, which had protruded at the time of operation because the patient was exceedingly unruly.

Herpes zoster ophthalmicus

Dr. H. Lucic showed a man, forty-seven years of age. His eye trouble started about November 1, 1928. He first noticed a soreness on the left side of his forehead. Three days later vesicles developed over the left forehead and scalp. A diagnosis of herpes zoster was made. A few days later a soreness of the left eye developed, at which time the cornea presented several small superficial central vesicles. The forehead cleared up rapidly under treatment. The vesicles disappeared from the cornea within a few days, leaving an irregular superficial scar. On November 11, 1928, the vision was O. S. 20/50 with correction. He returned to work on November 19, 1928, though some congestion of the globe remained. Within a few weeks after returning to work the patient complained of pain, photophobia and scratching. However, he continued to work because these symptoms were not severe. During all of this time he was treated at the office.

On August 21, 1929, he had a submucous resection done with complete relief of symptoms for about a month, when all of the symptoms reappeared. At this time the cornea was involved to a greater extent and the condition slowly became worse with involvement of the iris. On December 11, the patient was hospitalized for five days and placed on vigorous treatment consisting of large doses of sodium salicylate (orally) two milk injections intramuscularly, and atropin and heat to the eye.

Under this treatment all congestion of the globe disappeared, the pupil dilated well and the cornea became much clearer. Improvement continued for a few weeks but the eye soon regressed to the present condition. The blood Wassermann was negative and tuberculin tests were negative.

Discussion: Dr. William H. Crisp reported a very severe case of herpes zoster ophthalmicus in a man of fifty-two years. The right frontal and temporal region, and the right half of the nose, had been involved in a primary eruption, which was accompanied by large blisters. There had, in the course of the following several weeks been a great deal of severe neuralgia, with anesthesia of the skin over the affected area. The right eye had shown in addition to some superficial disturbance of the cornea, a distinct uveitis, the pupil having become bound down in spite of the use of mydriatics. There were a large number of good-sized brown pigment deposits on Descemet's membrane.

Familial Retinal Detachment

Dr. William C. Bane showed a man, forty-nine years of age. He came under observation in 1920 The vision of the right eye at that time with —20.00 sphere was 5/60; the pupil was 2 mm. wide and active, the fundus was fairly normal. The left eye was blind and had been cataractous since childhood. It was enucleated because of pain in May, 1920.

In January, 1930, he again consulted because of failing vision in his remaining eye over a period of a year. Four days previously "a scum of a purplish green color" came over his vision. An examination of the fundus revealed a detached retina from above downward so that but little of the fundus came into view.

The family history of this case was exceedingly interesting in that two brothers and one sister of the patient were afflicted with detached retina.

An older brother lost his left eye and the remaining eye suffered a detachment of the retina when he was thirty-five years old. He is now fifty-five years old and blind.

His sister had a detachment of the retina in both eyes at about thirty years of age and is now fifty-one years old and blind.

A younger brother developed a detachment of the retinae in 1912. He is now sixty years of age and "has enough vision to get around."

Dr. Bane has verified the above family history as stated by the patient. The two brothers and the sister had all consulted the late Dr. Gifford, correspond with his office and substantiated the family history as outlined.

Discussion: Dr. E. R. Neeper asked if it were a common thing for retinal detachment to occur in several members of the same family.

Dr. Edward Jackson stated that he had never seen retinal detachment occur in several members of the same family, and it was his opinion that the influence of heredity inasfar as this condition is concerned has not been definitely established.

April 19, 1930

DR. JAMES M. SHIELDS, PRESIDING

Tuberculous chorioretinitis

Dr. William C. Finnoff showed Mr. C. H. B., aged thirty-three, who complained of poor vision in both eyes since 1918. The failure had been gradual, but more rapid in the right eye than in the left. He was told by other physicians that he had tuberculous retinitis. He had been treated at intervals since 1918. No general tuberculosis was found. Tuberculin was used for ten weeks, beginning January, 1929, with apparent improvement, and the patient has had a variety of other treatments, including heliotherapy. The family history is negative; the general health good.

Examination of the right eye showed many large and small vitreous floaters and a large mass of retinitis proliferans occupying the lower portion of the globe. Definite strands of scar tissue ran from this mass toward the disc. On the temporal side the choroid was densely infiltrated with yellowish exudate. Pigment had migrated through the exudate in the lower portion. The exudation and pigment disturbance extended widely into the periphery, especially temporally where there were large masses of pigment present.

The left eye showed numerous dust like and several large, mossy floaters in the vitreous. The fundus details were obscured by the vitreous exudates. The disc margins were blurred and the retina edematous near the margin. Irregular

patches of infiltrate were scattered throughout the entire choroid and in the lower temporal quadrant a greenish mass of retinitis proliferans obscured the retina. The pigmentary changes are similar to those in the right, but not so extensive.

The patient is now having heliotherapy and tuberculin. Vision was R.: light perception and faulty projection, L.: 0.01.

Discussion: Dr. Edward Jackson thought that general heliotherapy would be advantageous in a case of this kind.

Dr. William H. Crisp suggested the use of local x-ray in these cases of such a desperate nature.

Epithelioma of the lid

Dr. William C. Bane brought Mr. W. E. S., aged seventy, in September, 1922. At the removal of a foreign body from the left cornea, there was observed a beginning cyst in the lower left lid. The left lid had been inflamed for about a month. On its inner surface, over the temporal half, there was a growth 8 by 9 millimeters in diameter and elevated about 2 millimeters. The growth had a reddish granular appearance. A tentative diagnosis of epithelioma was made. The patient was referred to a dermatologist for diagnosis and treatment. The first treatments were not effective and the patient was placed under the care of a second dermatologist who made three applications of radium. The growth disappeared. Photographs were exhibited; one of which showed the growth as it appeared in September, 1929. The second photograph taken in March, 1930, showed a small, whitish membrane, where the growth had existed. The third photograph showed an essentially normal lid free from tumor and membrane.

Discussion: Dr. William H. Crisp thought that in the interest of science a biopsy should be made in a case of this sort prior to the application of radium. It was his belief that frequently more radium than necessary was used.

Entropion

Dr. William C. Bane also showed Mr. O. M. D., aged sixty-three. He had lost his right eye when twenty-eight years of age. The left eye has been diseased for many years. This eye was highly myopic and astigmatic with vision of 5/15. For more than thirty years cilia have been removed from time to time, for relief of an irritation produced by their rubbing the cornea. The electric needle was used without satisfactory results.

On February 19, 1930, the Snellen operation for entropion was done. Two sutures were tied over beads. The result was satisfactory.

Tuberculous chorioretinitis?

Dr. William M. Bane presented the case of Mr. R. A. F. for an opinion as to etiology. He believed that lues would ordinarily be blamed but that a tuberculous origin must be considered.

The patient was examined in July, 1928, because of dimness of vision of the left eye. The vision was: R. 5/4-1, L. 5/6.1. There was a recent inflammation of the choroid and the retina of the left eye, with some strated hemorrhages below the disc. The usual general examinations were made but all findings were negative.

When seen in August of the same year, the vision of the left eye was improved to 5/5-2, but there was no material change in the appearance of the fundus.

When next seen, April 9, 1930, the vision of the left eye had again become blurred three days previously. The vision remained 5/4-1. Examination showed a pigmented choroiditis similar to the picture in the first examination. The vitreous was hazy due to dust like opacities. His physical condition was good, no general cause could be found. The Wassermann reaction was negative.

On April 10 the vision was 5/7.5; on April 17 no change was noted, but the vision was better: 5/5.

Coloboma of the iris and choroid

Dr. William M. Bane also presented a patient who exhibited a typical example of coloboma of the iris and choroid with a slight notching of the lower margin in the lens of the left eye. The vision was 5/7.5. No refraction had been made. The fellow eye was normal and there was no history of similar nature in any member of the family.

Acute congestive glaucoma

Dr. George Strader presented Mr. S., aged sixty-two. The patient had had acute attacks of glaucoma in November, 1924, in December, 1925, and in November, 1927. Every attack was preceded by pain in the lower second molar and antrum of the left side. X-rays and examinations showed an apical abscess of the involved molar and a chronic infection of the antrum. The tooth was removed and the antrum drained and thereby a prompt recovery was effected.

The eye was quiet until February, 1928, when an acute attack appeared with a tension of 65 mm. of mercury. A posterior sclerotomy was done preparatory to some other procedure for relief of tension. However relief was so prompt and satisfactory from the posterior sclerotomy that no other procedure was attempted.

In April, 1929, there was a sudden increase of tension. The eye was stony hard. An iridectomy was done and a swollen lens was removed.

The patient has had numerous occurrences of inflammation in the eye which has always been relieved by nasal treatment. Finally numerous dead teeth were removed and the ethmoid cells were exenterated. The tension has remained low and the patient has been comfortable as long as treatment has been continued.

DONALD H. O'ROURKE,
Secretary.

WOMAN'S AUXILIARY

AUXILIARY ACTIVITIES AT ANNUAL STATE MEETING

Again Pueblo's hospitality leaves a memorably happy and lasting impression upon the fortunates privileged to participate in the continuous performance provided for their amusement.

The local Auxiliary left nothing undone in planning pleasurable diversion and with the realization of the huge success of their various whirlwind functions, must feel repaid for their efforts in our behalf.

We truly voice the sentiments of all in expressing the deepest appreciation of the thought and time devoted to giving their guests a royal entertainment.

Increased interest in the ladies' attendance at annual meetings is manifested by the largest registration recorded at any meeting—110. Our president, Mrs. F. M. Meller, in her address stressed the importance of good-will and fellowship, as most necessary objects to promote. This spirit was noticeable as groups circled about exchanging cordial greetings with old friends and welcoming the newcomers.

A "Program Tea" Tuesday afternoon, complimentary to visiting ladies, headed the list of events, being well attended and much enjoyed.

The informal trap-shoot breakfast, interfered with numerous anticipated "beauty sleeps" bringing forth a large proportion of "better-halves" to help dispose of a most elaborate and appetizing breakfast, to say nothing of a test of the fair ladies' skill at target shooting. Prizes were awarded for best scores.

The annual subscription luncheon followed a business meeting and election of officers. Minnequa Club was beautifully decorated with garden flowers. The tables were arranged to form a star; a variety of garden flowers and numerous pink candles provided a feast for the eye, anticipatory to a most delicious and substantial repast. Bridge followed the luncheon and prizes were presented. These were donated by local firms. Thanks are extended to the Palace Drug Co. and the Jones Drug Co., for lovely compacts; to Mr. David Brown, representing Burroughs-Wellcome Co., for a handsome atomizer. Last, but not least, the Harvest Home supper featured a glorius climax to the festivities, attracting some four hundred to the Golf Club, which was gorgeously massed with suspended balloons of all colors; the walls banked with harvest products—grains, fruits, and flowers, and tables groaning with tempting culinary achievement.

Cavallo's Trio furnished music through the supper—vocal solos added to the program.

Those present at the Sixtieth Annual Session had one jolly good time. "The Missing Links" were just out of luck.

MRS. G. W. MIEL,
Publicity Chairman.

NEW AUXILIARY OFFICERS

Mrs. Richard G. Smith, Denver, was installed as president of the Woman's Auxiliary to the Colorado State Medical Society at the final meeting of the organization at Pueblo, September 11. A meeting of the old and new executive boards was held before adjournment.

Mrs. Smith succeeds Mrs. F. M. Heller, Pueblo, who presided at the convention meetings. Mrs. T. Mitchell Burns, Denver, was made president-elect of the Auxiliary. She will succeed Mrs. Smith next year.

Other new officers are Mrs. W. F. Rich, Pueblo, first vice president; Mrs. Andre Anderson, Ault, second vice president. Mrs. J. C. Darling, Durango, third vice president; Mrs. E. S. Strong, Grand Junction, fourth vice president; Mrs. D. W. Macomber, Denver, recording secretary; Mrs. F. Dewey Bishop, Denver, treasurer; Mrs. W. E. Morgan, Denver, auditor; and Mrs. J. A. McCaw, Denver, parliamentarian.

DENVER COUNTY

The first regular meeting of the Woman's Auxiliary to the Denver County Medical Society was held at the Denver General Nurses' Home, September 15, at 2:30 p. m. Owing to the unexpected absence of the president, Mrs. L. V. Sams, Mrs. Maurice Rees, vice president, presided. Following a short business session, tea was served by the hostesses: Mrs. W. E. Blanchard, Mrs. Dewey Bishop, Mrs. H. I. Barnard, Mrs. A. L. Beaghler, Mrs. F. E. Becker, Mrs. Mabelle Beacon, and Mrs. W. J. Bingham.

The second regular meeting will be on Monday, October 21.

COLORADO NEWS NOTES

BOULDER—Dr. Alfred H. Washburn has assumed the position of full time director of the child research council of the University of Colorado School of Medicine and Hospitals.

BOULDER—Dr. Carbon Gillaspie has returned from a two months' tour of European hospitals and clinics.

DENVER—Dr. Philip Work and family have returned from a three months' tour of Europe.

GRAND JUNCTION—Dr. Knud K. Hanson has returned from a three months' tour of northern Europe.

GREELEY—Dr. N. A. Madler will leave October 4 for a month's vacation in the East, during which he will attend the Annual Session of the American College of Surgeons at Philadelphia.

LA JUNTA—Dr. Albert L. Stickles has moved to San Pedro, Calif., and will assume a position with the United States Public Health Service.

PAGOSA SPRINGS—Dr. B. Frank Jackson has moved from Pagosa Springs to re-establish his home and practice in Las Animas, Colo. Dr. Jackson expects to enter the medical corps of the U. S. Veterans' Bureau at the Fort Lyon Hospital.

PUEBLO—Dr. Harry W. Packard, formerly of Pueblo but for the last twenty years a medical missionary in Persia, was a recent visitor in Pueblo and spoke before the Kiwanis Club.

RICO—Dr. J. E. Koplowite has left Rico to take a two-year post graduate course at Johns Hopkins Hospital, Baltimore, Maryland.

The manufacture of Kojic acid

Recent demonstration by the Bureau of Chemistry and Soils of the U. S. Department of Agriculture that molds of a certain species can produce gluconic acid, and so provide a cheap source of calcium gluconate hitherto expensive, has been followed by the production in that bureau of another compound which has possibiilties of industrial utilization, members of the American Chemical Society were told at their annual meeting in Cincinnati.

Orville E. May and Horace T. Herrick of the Department of Agriculture said that the latest organism to be put to work in the department's laboratories gives large yields of kojic acid when grown on corn sugar solution. Kojic acid has been produced for some years by the Japanese, together with sake and various condiments, by the action of mixed mold cultures on starchy products.

Kojic acid has a peculiar structure which is similar to that possessed by many of the natural plant coloring matters and may provide a basis for theoretical observations on the production of these colors in their natural state. This new compound also has possibilities of industrial utilization, and with a view to testing these possibilities, the department has sent samples of kojic acid to several industrial organizations.

WYOMING SECTION

President, C. W. Jeffrey, Rawlins — First Vice President, R. H. Sanders, Superior
President-Elect, E. L. Jewell, Shoshoni
Secretary, Earl Whedon, Sheridan — Treasurer, Evald Olson, Lovell
Delegate to the A. M. A., Geo. P. Johnston, Cheyenne — Alternate, J. H. Holland, Evanston
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Medical Defense Committee: Earl Whedon, Sheridan — Chester Harris, Basin — F. A. Mills, Powell

EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT



EMORY LEE JEWELL, M.D.
President, Wyoming State Medical Society

PRESIDENT DR. EMORY LEE JEWELL

Elected president-elect, 1929, and becoming president July 15, 1930, Dr. Emory Lee Jewell was born in Pine Island, Minnesota, on July 11, 1875. He attended the public schools of that place and taught in a rural school for a year.

He took pre-medic work at Carleton College, Northfield, Minnesota, and later a medical course at the University of Minnesota, graduating in 1903. Post-graduate work followed in Minneapolis and clinics at Rochester, Minnesota. He came to Lost Cabin, Wyoming, in 1904. He was married to Livia A. Willoughby on March 28, 1905. His one daughter, Isabel Jewell, is now on the legitimate stage in New York City.

Dr. Jewell came to Shoshoni, Wyoming, with the railroad in 1906 where he has enjoyed a pleasant if not extremely lucrative practice since that time. He is local surgeon for the Chicago Northwestern and C. B. & Q. railroads and a member of the American Association of Railway Surgeons, Fremont County Medical Society, Wyoming State Medical Society and American Medical Association.

THE AMERICAN LEGION

Following all wars, organizations of the survivors spring up. The Civil War produced the G. A. R. The war with Spain gave us the Spanish-American War veterans. The World War produced the American Legion as the outstanding post war organization.

It is true that the Veterans of Foreign Wars and other organizations are also offsprings of the World War, but the American Legion is the outstanding organization of that great conflict.

The basic ideals of the organization are good, and there has grown up among the American people a feeling that it is a great power and with that feeling a fear complex has developed. Politicians and business men are afraid to oppose anything that the Legion sponsors.

Some men are at heart such cowards that they dare not say anything against this organization, even when the Legion is wrong. There exists a holy halo about the name "American Legion" and he who dares to oppose or expose the mistakes made by the Legion is considered by those people, unpatriotic. He is even considered by some as unamerican and a traitor. To the honest, fearless soul there are many, many things wrong with the American Legion. We do not begrudge them any honors that may be given, any compensation, insurance or care for sickness or injuries sustained while in the service. These things are just and right.

But when the Legion demanded and forced through Congress a bill to give the survivors of the late war free medical and surgical treatment for any sickness or injury, which occurs in the ordinary affairs of life after the war is over and has nothing to do with the war, we consider this unjust and we are not afraid to say so. It would be just as fair to give them free beef steaks, free clothes and free diamonds as it is to give free medical and hospital care when their sickness or accidents result from causes not connected with war service but in our every-day life. Why should they work at all? That is the logical conclusion from their demands.

Some dare not mention the fact that a great number of the real leaders of the war have refused to join the Legion because many of the leaders of today were men who were drafted against their will. Those of us who tried to enlist and were refused, later acting on the local boards and advisory boards where shirkers were examined see names and faces we remember and know their records and they are often in the vanguard of the Legion.

We have letters from some of those we passed threatening our lives for compelling them to do their duty. They were cowards at heart then and are today and never for a moment did we fear their return to carry out their threats. Cowards within the army and cowards and grafters in the Legion, and it is up to the real Americans in the Legion to control them. More attention should be given to the character of the membership rather than to the number of members who

can be enrolled. That the American Legion owes the American people a duty to expose grafters who are constantly trying to secure undeserved compensation is self-evident.

The American Legion cannot expect support from the medical profession in fake cases: such claims we doctors refuse to recognize. Let the American Legion take the lead in this house cleaning. E. W.

Obituary



Dr. James McDowell Patton

We have delayed the publication of this article until we could secure the likeness herewith printed.

As we look into the face of one of our beloved friends we recall the real man.

Born September 24, 1876, he died June 20, 1930. Dr. Patton graduated from Bloomfield High School, Bellevue College, and the University of Nebraska as an M.D. in 1904. He took postgraduate work in London and Vienna in 1909 and 1928. He became Professor of Ophthalmology, University of Nebraska College of Medicine, which position he held at the time of his death.

Entering the office and clinic of the late Dr. Harold Gifford he became one of the outstanding ophthalmologists of the central west.

He was a member of the American Ophthalmological Society, American Academy of Ophthalmology, American Medical Association, American College of Surgeons, Northwest Eye, Ear, Nose and Throat, Missouri Valley Medical Society, Nebraska State Medical Society, Douglas County Medical Society, Douglas County Section of Ophthalmology and Otolaryngology, President of the Douglas County Medical Society in 1921.

He was vice chairman of the section of the A. M. A.

Dr. Patton was also greatly interested in religious and church work. He was for many years superintendent of the Sunday School of the Lowe Avenue Presbyterian Church where he also served first as deacon and later as elder, which position he held at the time of his death. Busy as he was, he always had time to direct the drives for the medical portion of the Community Chest and any worthy effort for civic advancement found in him not only an active supporter but also a ready and generous contributor. He was also a member of the board of the Presbyterian Theological Seminary of Omaha.

His daily contact with the medical profession in the middle West resulted in the closest of friendships. Not alone was this due to his knowledge and skill but also to his lovable nature and kindly ways.

We miss him and only by the passage of years and years will our memory of him die, and then only when we, too, pass over the divide: but who knows perhaps not then. E. W.

WYOMING NEWS NOTES

NORTHWESTERN COUNTY

Dr. F. A. Mills and family met Dr. C. H. McBurney and family of Clinton, Oklahoma, at Rawlins for a few days' visit. The McBurneys were on a trip to Zion Park, Grand Canyon, etc. The two families stayed at the home of Dr. and Mrs. Crandall of Rawlins, as they were at the Salt Lake celebration. From Rawlins Dr. Mills and family drove to Boulder, Colo., and spent a few days visiting with relatives.

Dr. Crandall of Rawlins drove to Denver and drove back a new car.

The meeting of the Northwestern Wyoming Medical Society took place in Worland.

SWEETWATER COUNTY

Dr. Oliver Chambers recently spent two weeks at his Chateau at the upper end of Fremont Lake, having as his guests some of the teaching staff of Brown University.

Dr. J. H. Goodnough and family spent ten days vacationing in the mountains of Utah and enjoying the scenery.

Dr. Larson and family recently spent a week in Yellowstone Park and in the Jackson Hole country.

Dr. Augustus Davis spent a week visiting relatives in Colorado.

Dr. Edward S. Lauzer is attending the annual meeting of the Washington State Medical Society and is on the program to open the discussion of a paper by Dr. J. T. Rooks on Septic Meningitis. Dr. Rooks is one of the "Journal Trustees," and a member of the "Committee on Public Health and Education" of the Washington State Medical Society.

Dr. H. H. Markel, a prominent orthopedic surgeon of San Francisco is expected to visit Rock Springs, September 15 to enjoy an elk hunt in the upper country.

The Sweetwater County Medical Society is holding regular meetings with good attendance, all members showing enthusiasm.

A woman was recently delivered of twins, both being hermaphrodites, of the male type.

ASTHMA SECONDARY TO FOCAL INFECTION*†

JOHN B. POTTS, M.D.
OMAHA, NEBRASKA

In presenting this subject to you for consideration, I wish to introduce a symptom which is of interest to practitioners of practically every branch of medicine. Hence it seems particularly fitting for such a gathering. Again, it is a common ailment and one which we are all familiar with and often puzzled over. It is bizarre in its manifestations and its paroxysms are excited by many different stimuli. Its fundamental basic cause lies in the chemistry of our baso-metabolism and is yet to be explained. Clinically for convenience it can be classified into two classes: (a) Allergic,—those cases excited by pollens, foods, animal emanations, etc.; (b) bacterial,—those cases secondary to infection of the nose, nasal accessory sinuses and the alveolar processes.

It is the second class that I wish to discuss. It is that class of patients seen in our offices who do not respond to allergic treatment and as this is about all that we physicians have had to offer them for the past decade, medicine has been a miserable failure for them.

As the exciting cause of their asthma is elaborated in their own anatomy, there is little or no surcease from their suffering. Hence they form a group of the most constantly afflicted people we see. Many have had their asthma for years, and much of the time they have been incapacitated for work or pleasure. Their history is interesting and is divided into two classes. Those in whom the attacks developed following an infection of the roots of the teeth, usually the molar or bicuspids. (So far I have not seen an asthma secondary to infection of the incisors.) Pyorrhea, unless it becomes so extensive as to involve the alveolar process, apparently causes no reaction; in other words, we must have an alveolar infection. Apparently one of the most common causes of alveolar infection is the ordinary extraction of teeth with or without the curettement of the tooth fossa. This injures the bone and lights up the infection, and then the soft parts heal over and seal in the infection. Here it continues to live and elaborate its toxins. Such an infection probably seldom heals and remains a menace for the remainder of the patient's life. I have reported one case in which the infection was traced back twenty-one years. Very frequently it happens that the infection penetrates the maxillary sinus and a chronic hyperplastic sinusitis results. The mucous membrane becomes much thickened and often polypoid, but unless secondarily infected, does not discharge pus. Hence you can easily understand how a diagnosis of infection either of the alveolar process or of the maxillary sinus can be overlooked. Only the x-ray can reveal this hidden infection, and I may say, only the most expert use of the latter will do this. The ordinary roentgenologist will not take films of the head which show the sinuses sufficiently clearly to differentiate a normal and a pathologically thickened mucous membrane. In addition to the regular radiograph, it is most helpful and often necessary to introduce some radio opaque oil into the sinuses to demonstrate the extent of the thickening present.

The other class is those giving a history of repeated nasal infection which gradually develops into a condition of chronic nasal colds. Many of these also suffer from hayfever.

On examination of the nose in the first class, frequently but little pathology is seen. The inferior turbinate of the affected side is often tumefied and there may be a polypus extending from the osteum of the antrum. The second class, on the other hand, usually show marked nasal pathology. The turbinates are swollen, the mucous membrane pale and thick, and pus and polypi are usually present.

On account of the frank evidence of nasal infections many of these have had repeated

*From the Departments of Oto-Laryngology and Experimental Medicine, University of Nebraska Medical College.

†Presented before the Wyoming State Medical Society, July 14, 1930.

nasal operations often with temporary relief from their asthma, and in some cases with permanent relief. This has been known for many years.

It was reported first in 1872 by Voltilini and his success has been repeated many times, but only a small percentage of the cases remained permanently free from their asthma. For this reason nasal surgery fell into disrepute, and justly so, with our friends the internists, and they tried various other measures with little success. An extensive search has been made for the exciting cause. Dixon and Brodie demonstrated a reflex area in the region of the anterior tip of the middle turbinate and opposite it on the septum. Adam and others advocated diets. Vaccines were used, purified frozen air was advocated by Van Leeuwen of Holland. All these methods were rational and aided the patients and even cured some, but none eradicated the basic condition and so all fell short of a cure for the class as a whole.

For a number of years I have been working on focal infection with Dr. A. D. Dunn, professor of experimental medicine of the University of Nebraska College of Medicine, and Dr. Lowell Dunn, who is in charge of this laboratory, and in analyzing our asthma cases we found that those receiving the most relief from nasal surgery were those in whom the nasal infection was most nearly cured. We also became convinced that the cause of the asthma in those cases which were not sensitive to allergic tests was a bacterial infection in the mucous membrane. This is a true bacteremia, and we concluded that the toxins elaborated by the bacteria in the infected membrane were the exciting cause of the asthma and not mechanical pressure or obstruction in the nares. A microscopical examination of the mucous membranes removed, showed bacteria all through them even down to the bone. With this conception the rational ideal treatment is the complete removal of all the infected membrane. This, of course, is not possible in all cases, but in order to do this as nearly as possible, it is necessary to have an accurate knowledge of the condition of all the sinuses and the alveolar processes. Otherwise we shall fall into one of two errors; either we shall do much unnecessary and harmful surgery or we shall leave infected mucous membrane. This eliminates meddlesome surgery. The issue is clear cut. The mucous membrane of the infected sinus must be removed with as little injury to the rest of the nares as possible. The indiscriminate removal of turbinates, spurs and straightening of the septum, is obviously not to be done.

Our procedure is first to eliminate those cases which are allergic or if they are combined allergic and bacterial, to eliminate the allergic factor. Then a careful search is made for all the foci of infection in the head. The introduction of opaque oil into the sinuses has been a great help as it graphically shows the hyperplasia of the mucosa. The operation consists in the removal as nearly as possible of all hyperplastic diseased mucous membrane of the sinuses. Except where the middle turbinate has undergone polypoid degeneration, the turbinate bones are not molested. The extraction of teeth by the old method was a menace rather than a benefit. So convinced are we of the danger of residual infection from the ordinary extraction of teeth that as a matter of routine, we have the alveolar processes radiographed when looking for a focus of infection. Also we have found it exceedingly difficult to secure satisfactory radiograms of the sinuses, and only since we have induced the radiologist to equip himself with special apparatus for sinus work and have personally trained him so that he takes each film at exactly the same angle, have we had satisfactory radiographs. The introduction of the radio opaque oil, also requires much care and experience. Since adopting this exacting routine, our results have been quite satisfactory.

The results of this apparently radical procedure locally on the nose are exceedingly satisfactory. If the operation is properly done, the nose heals rapidly and is free from pus and scabbing. The polypi do not return and the patients do not complain of dryness. The external scar from a Lynch operation is slight and not disfiguring. The antrum leaves no deformity. The interior of the an-

trum is covered by a serviceable membrane which gives no trouble. Dr. C. B. Gorham in the Archives of Otolaryngology, June, 1930, page 765, has demonstrated to his own satisfaction that this new membrane contains glands and is covered by ciliated mucous membrane. It had previously been demonstrated that this regeneration took place in dogs.

Conclusion

The bacteria elaborating the toxin of focal infection lie in the mucous membrane. Therefore to remove the infection the membrane must be removed.

Chronic hyperplastic sinusitis with a tendency to the formation of polypi is the type usually responsible for focal infection.

Partial removal of such a membrane or intranasal drainage of such a sinus is analogous to the partial removal of a chronically infected tonsil, and does not remove the infection.

SHERIDAN COUNTY

A glass peddler by the name of Edward Norwood, who advertised himself in the papers of Wyoming as Dr. Edward Norwood, eyesight specialist, was arrested on complaint of County Attorney Maurice Cone, Sheridan county. Mr. Norwood spent a day or two in jail before he was able to put up a bond for his appearance in the next term of the District Court.

It's bad enough to have these unscientific men selling glasses, but it's very much worse when they mislead the public by using the honored title of doctor when they have no right to it.

The present medical practice act in Wyoming prohibits the illegitimate use of the title of doctor and the Wyoming State Medical Society should see that this law is enforced.

Relief efforts of the French Red Cross

The following figures, taken from the bulletin of the League of Red Cross Societies, give some idea of the extensive relief activities undertaken by the French Red Cross in aid of the flood victims in the South of France:

In Montauban alone, the Red Cross found shelter for 200 homeless and, by April 8, had distributed 20,000 meals. Seventy truckloads (representing 25 tons) of clothing, household utensils, etc., were dispatched to the stricken towns. The Red Cross Committee of Bordeaux contributed 13,000 beds, while the Montauban Committee distributed several thousand articles of furniture. At Castre, the Red Cross supervised the installation of the huts erected by the municipal authorities and laid the water pipes and electric light cables. In the Aude department, it vaccinated the inhabitants and took charge of the disinfecting operations. The total expenditure incurred for these activities had attained 8,750,000 francs by the end of April.

Calcium malate in maple sugar

An inquiry into the cause of death of two children in northern New York disclosed the fact that they had poured water into an old maple sugar can to dissolve the "sand" on the bottom and then had drunk the liquid. Research by state chemists shows that this "sand", which can be extracted from freshly made maple syrup, consists largely of calcium malate. It is known that magnesium malate in doses of more than six grams will produce severe diarrhea in an adult. Since the children had died after violent gastro-intestinal disturbance with bloody and profuse stools and marked prostration, it is thought probable calcium malate was the cause of death.

A devious design

Set a woman to catch a woman! Nine years ago Professor Anne Louise McIlroy of the Royal Free Hospital for Women gave evidence in a court of law that the contraceptive pessary recommended by Dr. Marie Stopes was a singularly ineffective as well as a harmful device. Dr. Stopes has never forgotten this. Recently she heard that her detractor (or the detractor of her pet pessary which, after all, is just as bad) was actually prescribing this same instrument in her own practice. Did Dr. Stopes thereupon write a polite letter to the professor to glean the reason for her change of heart? No, she had a more ingenious plan. Disguising herself at great pains as "a work-grimed charwoman" she applied on the correct day at the out-patient department and was supplied and fitted with one of the disputable pessaries by none other than the professor herself. The details of this successful coup d'etat are described on the front pages of the Birth Control News by Dr. Marie Stopes.

TUBERCULOSIS ABSTRACTS

A Review for Physicians

ISSUED MONTHLY BY THE NATIONAL TUBERCULOSIS ASSOCIATION

Vol. III October, 1930 **Number 10**

THAT CHILDREN may have a latent form of tuberculosis is a novel and disturbing thought to most parents and teachers. The growing appreciation of the significance of childhood type of tuberculosis is creating a demand that something be done to prevent the latent form of the disease from progressing. Some are urging the development of preventoria. But there is considerable confusion in the public mind, as well as among the profession, as to what a preventorium is and what purpose it is supposed to serve. The following is a résumé of a recent article attempting to clarify the subject.

What Is a Preventorium?

The term "preventorium" was first used to designate a convalescent home for adults (Brehmer's Rest at Ste. Agathe des Monts in Canada) on the ground that any depleting illness may predispose to tuberculosis and that after-care tended to prevent tuberculosis.

In 1909, New York City, through the interest of Dr. Alfred Hess, established at Farmingdale, N. J., an institution to take care of "pre-tuberculous" children. It was called a preventorium. Unlike the Canadian institution, which was designed for convalescent adults, that at Farmingdale was exclusively for children presumably threatened with tuberculosis. Similar institutions sprang up, though practices and procedures were not uniform.

Ideas as to what the preventorium was supposed to be and do were vague. However, the dominating purpose of all was a desire to provide care for the sick child. The term, "pre-tuberculous," was applied rather loosely to the child with actual tuberculosis, the child of a tuberculous household, and the child below par in health, as expressed usually in malnutrition, but all were regarded as sick children.

Quite another development in these early days was the establishment of fresh air schools and open window rooms. Their purpose was to increase the resistance of certain selected persons, who were not sick but who were presumed to be potential victims of tuberculosis. The emphasis was on health building rather than on disease prevention.

As we learned to differentiate between infection, mass infection, and actual disease, and as it became evident that the beneficial results of both preventoria and fresh air schools were to be attributed to rest, good nutrition, and a well-regulated regimen, the procedures and objectives of both types of institutions tended to merge. For that



Open Air Class, Sunshine Hills, Springfield Lake (Ohio) Sanatorium.

reason, it is today impossible to answer statistically how many preventoria and fresh air schools there are in the United States.

Three years ago, the Committee on Preventoria of the National Tuberculosis Association formulated this definition: "A preventorium is a twenty-four hour, twelve months institution for the care and observation of children substandard in health." The general purpose of this institution was assumed to be giving preventive care to children threatened with tuberculosis, heart disease, or other potential disability. Exact standards of eligibility were not defined but the Committee indicated the groups from which selections for the preventorium might be made, as follows:

1. Children exposed to tuberculosis at home, or in whose immediate family there has been a recent death from tuberculosis.
2. Children who have had tuberculosis, whose lesions are not active, and who appear to be in need of further care and observation.
3. Children suffering from malnutrition.
4. Children who tire easily and who are unable to carry on their class work.
5. Children frequently absent because of colds, bronchitis, etc.
6. Children suffering from rheumatic heart disease (of certain classifications).

It is now recognized that many children who need protective care do not require the exacting regimen furnished by a twenty-four hour, highly specialized preventorium. Some preventoria assume complete charge of their children, keeping them for twenty-four hours of the day the year round until they have apparently developed good resistance, while others permit their charges to return home over the weekend. The predominating purpose of these institutions is to give medical care, and secondly to provide school instruction. Another type of preventorium is essentially a school which cares for the children only during school hours and which furnishes supplementary meals, rest periods during the day, etc., while in the meantime conditions in the children's homes are scrutinized and supervised by a special follow-up worker.

While preventoria, fresh air schools, open window classrooms, nutrition classes, and health camps vary widely in their procedures, the main purpose of all seems to be to give handicapped children an extra lift so as to prevent the threatened disaster of pulmonary tuberculosis in later years. Opinion in the main seems to be that children with the childhood type of tuberculosis (unless progressive) should not be regarded as sick children but rather as being threatened with disease. Certainly, children with the adult type of pulmonary tuberculosis should not be in the preventorium, not only because they are definitely ill, but also because they are potential spreaders of the disease.

There would be less confusion of thought about preventoria were discussions concerned not so much with building construction, physical equipment, staff, etc., but with the therapeutic requirements of children who need protective care. Indications for treatment of such children are:

1. Contact with the tuberculous adult, who presumably has infected the child, must be broken. This is done by removing the tuberculous adult to a sanatorium, by taking the child out of the home, or by teaching every member of the household the principles underlying the transmission of tuberculosis.
2. The child must be relieved of all possible strain; i.e., strenuous exercise and burdensome school work. Rest is the cornerstone on which preventorium care is based.
3. The child's health must be built up; physical defects must be corrected and the benefits of good food, sunshine, and fresh air must be made available.
4. The psychology of the child must be adjusted so that he will not think of himself as being inferior to others gifted with greater reserve of physique, and yet restrain over-ambitious impulses.

These indications for treatment can, under ordinary circumstances, be met without the aid of a definite institution, but there are, of course, numerous "problem families," as the social worker calls them, where it is impossible to meet the requirements enumerated above. These problem families are not limited to the poor or ignorant, but include many families of intelligence and of means who, for any reason, are unable to afford the child the necessary protection.

While no formula can be given for the solution of the problem, an understanding of the general principles should enable any community to determine the type of preventorium care which best suits its needs. The various attempts now being made to cope with the problem should be regarded as experiments. The test of time will reveal which type of preventorium is the most efficient. Fortunately, a number of preventorium institutions are carefully following their pupils into adult life in order to learn what their subsequent experiences may be. When enough of such data has been collected, we may be able to determine more precisely what the ideal form of organized care may be.—*What Is a Preventorium? H. E. Kleinschmidt, Jour. of Pub. Health, July, 1930.*

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EDITORIAL NOTES AND COMMENT

MEDICAL TREATMENT OF CANCER

"The treatment of cancer today," says Dr. Bloodgood[1], "in any stage is surgery and radiation. At present there is no other treatment." Yet the search for a chemotherapeutic cure has not been abandoned. Nor can we reasonably expect that it will be while on the one hand so many cases progress beyond the reach of surgical aid and on the other research workers continue to point, as Dr. Robertson[2] pointed recently, to the suspected malign influence of a biochemical environment. Sir William Simpson[3] is unwilling that British cancer experts should forget the attempts to provide an anti-cancer serum, inaugurated by the late Dr. C. Purvis of Grahamstown, South Africa, and continued at the Lister Institute, not without some encouraging results, by Dr. Thomas Lumsden.[4] At the Takamatsu Hospital in Japan, an enthusiastic gynecologist[5] claims results with a hormone extracted from Wharton's jelly, whose normal function, he believes, is "to decompose completely the gravid as well as the menstrual decidua." A powerful, because a very moderate and cautious plea, is made for the medical treatment of cancer by Dr. A. T. Todd[6] of the Bristol Royal Infirmary. The programme of Dr. Todd and his fellow workers has been conservative: to treat hopeless cases and then to apply the results as an addition to the present surgical and radiological treatment. They use lead although they do not accept the theory of Blair Bell and the Liverpool School that lead is a specific poison to the cancer cell, for they find less metal lead in the cancer than in the normal tissues. They believe that the colloidal lead selinide which they administer acts indirectly and have found in the cases which show a response to treatment an increase in small lymphocytes and eosinophile leucocytes. These blood changes are not present when the patient fails to respond to the treatment. They conceive their treatment to be a stimulus to the "junction tissue" and find that hyperplasia of connective tissue sometimes follows to an extent that is embarrassing. Besides the treatment with lead selinide they treat their patients with calcium chloride and with the fat soluble vitamins. For the anemia so often present in advanced cancer they use liver extract. For each of these remedies they are able to produce rational and experimental evidence. Yet they ask no one to follow their program. They do not expect that it will reduce cancer mortality to any material extent. But they hope to improve it and believe that it is not impossible that ultimately the conquest of cancer may come about by treating the

[1]Bloodgood, J. C.: J. Med. Soc New Jersey 27: 651 (Aug.), 1930.

[2]Robertson, H. E.: Observations on the growth and Spread of Carcinoma, Colo. Med., 27:4 (Jan.), 1930.

[3]Simpson, Sir William: Some remarks on the Recent Report of the British Empire Cancer Campaign, J. Trop. Med. & Hyg., 33:223 (Aug. 1), 1930.

[4]Lumsden, Thomas: Further Observations on Immunity in relation to transplantable Malignant Tumors, Lancet 1:112 (July 17), 1926.

[5]Ishihara, Toshio: Treatment of Cancer based upon a New Theory of Internal Secretion, Japan Med. World, 10:27 (Feb. 15), 1930.

[6]Todd, A. T.: The Medical Treatment of Cancer, Lancet, 2:389 (Aug. 23), 1930.

patient rather than the cancer itself. In the meantime they are able to prolong life and to hearten it with hope. Provided that no patient is tempted to deny himself the greater security of surgical treatment whenever this is practicable, such attempts are surely not to be discouraged.

PROPHYLACTIC AUTOGENOUS MENINGOCOCCAL VACCINE

For every active infection with meningococcal meningitis there are usually perhaps a dozen healthy carriers. What shall the physician advise in regard to these relatives and friends who carry the dangerous organism in their noses? The use of antiseptic nasal douches is to be discouraged because of the liability of removing a more effective barrier of healthy mucus. Dr. M. E. Manoussakis[1] of Athens has employed with success the method of prophylactic vaccination. Confronted in a cavalry barracks with 150 contacts of whom at least 70 per cent were carriers, he prepared a vaccine by culture from the spinal fluid of the original case of meningococcal disease. The vaccine was killed by heat at 56° C. for half an hour and administered in two doses of two and three milliards respectively at a week's interval. Soon after the second dose examination of the men showed that only 2 per cent were carriers at that time. No new cases occurred. Since this experience Dr. Manoussakis has used prophylactic inoculation in three more military epidemics: two during the winter of 1929 and one in the present year. In each case the success has been complete. The writer attributes his happy experience to two factors: (1) that the vaccine was fresh and (2) that the strain of organisms employed was absolutely specific.

It is true that inoculation of carriers is not a new idea in the prophylaxis of meningococcus meningitis. Simon Flexner[2] long ago drew attention to its possibilities only to add that it had failed completely. It is true also that the marked reduction of carriers following inoculation (from 70 per cent to 2 per cent) in the Manoussakis series is impressive largely because of the unusually high proportion of carriers among the contacts. Nevertheless the apparent success of this latest attempt to control a most elusive infection warrants our attention and demands a new investigation of the hygienic aspects of active immunization with specific cultures of meningococci.

[1]Manoussakis, M. E. L'Autovaccination antiméningococcique en Période Epidémique, Bul. de l'Acad. de Méd. 104:155 (Aug. 4), 1930.

[2]Flexner, Simon: Mode of Infection, Means of Prevention and Specific Treatment of Meningitis, J. A. M. A., 69:639 (Aug. 25) 1917; ibid. 69:721 (Sept. 1) 1917.

DANGEROUS DISTRIBUTION OF DRUGS

Not long ago there was left at the door of a member of the Colorado State Medical Society, a sample of a certain drug in pill form. The pills were in a small tin box easily opened and provided with no wrapping. They were in sufficient amount to constitute a fatal dose for the doctor's young and inquisitive son. Fortunately they were found in time by the doctor's wife. But the danger was too obvious to be passed by unnoticed. The doctor wrote a letter to the pharmaceutical manufacturers of the pills and by return post received the following reply:

> Thank you very much, indeed, for your letter of September 19th calling our attention to the matter of one of our representatives leaving a sample of ———— at your residence in a manner absolutely in violation of all instructions issued from this office.
>
> We deeply apologize for this incident and wish to assure you that we are taking steps to prevent any repetition of such practice in the city of Denver.
>
> The rarity of such an unpardonable action on the part of a ———— representative may be intimated to you by the fact that your letter is the only one of the kind received at ———— this year and we are at present operating four hundred representatives, calling daily upon the profession.
>
> Again please be assured of our appreciation of your courtesy in calling this affair to our attention.

We draw attention to the matter here for two reasons. When we have reason to be dissatisfied with the local handling of drugs, it may well be that a word to headquarters will bring about immediate improvement. When powerful drugs are to be distributed, either by hand or through the mails, it is highly important that they be not left lying where they are accessible to children.

(Continued on Page XVI, Advertising Section)

SYMPOSIUM ON

Postoperative Lung Complications with Special Reference to

ATELECTASIS*

THE PHYSIOLOGY OF PULMONARY ATELECTASIS

HENRY SEWALL, M.D.
DENVER

Definitions tend to clear the way to understanding.

The term atelectasis is derived from two Greek words meaning imperfect expansion; it was first used by E. Jörg in a Latin dissertation in 1832 to describe the state of pulmonary collapse. But already in 1814 a Frenchman, J. A. Troccon, made an important contribution by showing that disseminated areas of collapse in certain systemic diseases were not due to lobular pneumonia, as had been taught, but to simple alveolar collapse, and proved his point by blowing up the lobule. The same contention by two other Frenchmen, Legendre and Bailly, was strongly advanced in 1844 in protest against prevailing clinical-pathological conceptions and their catholic treatment of that day by venesection and other reducing measures. They held that the airless condition of the lobules may occur in the absence of all inflammation, but it usually develops after the advent of bronchiolar obstruction caused by pulmonary catarrh of whatever origin. Gairdner, in 1853, confirmed these findings and emphasized the causal importance of bronchial obstruction. According to him such obstruction is never complete. The plug of mucus acted as a ball-valve, permitting air to escape from the alveoli during the act of expiration, but preventing its return during inspiratory expansion. Speedy collapse of the air cells was a consequence. In view of the modern demonstrations by Macklin and by Chevalier Jackson that there is inspiratory lengthening and expansion of the bronchi, and expiratory shortening and narrowing of these tubes, we should expect that the ball valve plug of bronchial mucus would rather lead to emphysema of the air vesicles than to atelectasis.

Finally, in 1878, Lichtheim published experimental observations on rabbits which gave us the view generally held today as to the efficient cause of pulmonary collapse. Lichtheim rejected Gairdner's hypothesis that the air cells were emptied as a result of a ball-valve bronchial obstruction which became complete in inspiration but incomplete in expiration. Lichtheim concluded "that all forms of atelectasis, that due to bronchial occlusion as well as that following opening of the pleura, are caused by absorption of air from the air cells by the blood circulating in their walls." Nevertheless, if time permitted, it would be easy to show that Lichtheim's own experiments indicate that respiratory movement on the part of the lung is an important factor in the emptying of the air cells; whether by increasing the efficiency of vascular absorption or by ball-valve action of a bronchial plug is not clear.

It may assist the imagination to grasp the mechanical factors involved in atelectasis to remember that, though even the smaller bronchi are doubtless held open by cartilaginous arcs in their walls, the terminal bronchioles from which the air cells spring have no such stiffening. According to Vierordt the terminal bronchioles in the human lung have lumina of only 0.18 mm. to 0.22 mm. in diameter while the smallest air cells have a diameter of 1 mm.; or, according to a more familiar scale, air sacs of 1/25 inch in diameter open into soft terminal bronchi having a bore of approximately 1/125 of an inch.

It would seem almost as if bronchial occlusion from wrinkling or from bronchial secretions would be habitual in the resting lung.

Whenever we measure the anatomical and functional capacity of any tissue we find

*Given at the sixtieth annual meeting of the Colorado State Medical Society, Sept. 9-11, 1930.

them greatly in excess of any normal demands made upon them in life. The kingdom of cellular nature illustrates a preponderance of specific functional unemployment that make our sociologic problems absurdly insignificant. But in physiology we recognize that normal idle tissues are reserve forces and we classify them as "factors of safety."

The lungs pre-eminently illustrate the condition of non-use. Sir Arthur Keith asserts that a man of sedentary occupation does not use more than one-tenth of the lung tissue available for respiration. If this be true, we may conclude that approximately nine-tenths of the available lung tissue has little or no respiratory movement in the resting person. Keith says: "Of the five areas on the surface of the human lung, three are in contact with stationary parts of the thoracic wall and therefore cannot be directly expanded. These three pulmonary surfaces are, (1) the mediastinal in contact with the pericardium and structures of the mediastinum; (2) the dorsal surface, in contact with the spinal segments of the ribs; (3) the apical surface, the pulmonary area lying in contact with Sibson's fascia at the root of the neck . . . The two surfaces of the lung which are directly expanded are the diaphragmatic and the ventro-lateral or sterno-costal."

Now, we cannot but speculate that in quiet breathing the air-sacs whose mean diameter is one millimeter must have a volume much less than this represents; in short that the non-moving lobule represents almost solid tissue speckled inside with microscopic air bubbles; and that an aggregation of many such lobules on, say, the posterior surface of the lung would present to the percussion stroke of an examiner a distinctly relative dullness as compared with the functioning lung.

This is exactly what we frequently do find in physical examination of the back of a healthy man who has not been exercising. It is interesting to observe that with a few vigorous percussion strokes such areas of dullness become relatively clear. We may surmise that the air is not wholly absent from the lobules which gave a dull percussion note. For it has been shown on animals submitted to even complete artificial pneumothorax that if a portion of the fully collapsed lung be excised it will float on water. But if the circulation of the animal be intact, the air contained in the collapsed lung will be absorbed in a few hours and the tissue sinks in water. For a considerable time after such collapse in a lung complete re-expansion may be secured by insufflation or by diminution of external air pressure, as illustrated in re-examination of the lung after intermitting pneumothorax treatment. But undoubtedly organic integrity of the pulmonary tissue may be destroyed under some conditions of collapse.

A hospital patient of mine, a Japanese who could not speak English, had carried a right-sided serous pleural effusion under high pressure for an indefinite time. Fluid would rapidly re-accumulate following aspiration. Subcutaneous homo-inoculation of a small quantity of the fluid had no effect on the effusion, but a toxic condition supervened and carried off the patient. At autopsy the right lung was reduced to the size of a very small orange, as I remember it, red in color and of the consistency of a cirrhotic liver or kidney. It seems absurd to think of re-expansion in such a tissue as possible.

It may be concluded from what has gone before that near atelectasis, where there is considerable local condensation of pulmonary tissue which still holds air, is a habitual and normal phenomenon. No rational person would call it evidence of disease; on the contrary, we may even venture to suspect that pulmonary near-atelectasis,—or even local complete atelectasis—represents one of the finer provisions for conserving the output of respiratory energy. No muscular effort is wasted in the expansion of air cells off duty.

If this be so, how shall we account for the fact that pulmonary atelectasis, producing condensations capable of simulating the percussion dullness of lobar pneumonia or of throwing dense shadows on the skiagram,—is being recognized daily as the accompaniment of critical pathological conditions? Is atelectasis itself a criminal or is it the policeman who seeks the criminal for our good?

Our hats are off to our protectors against infection—the phagocytes of our tissues; probably not one of us but owes to them his life; but when they are degraded into pus we would cut them off root and branch. But only because of the bad company they keep.

These metaphors demand that we do not neglect to seek the Why of atelectasis. Personally I feel sure that study of the How of clinical atelectasis will show that its occurrence is more frequent than is usually conceived. It is doubtless a concomitant of well nigh every pulmonary trouble. Within the past year or two tuberculosis specialists of very high rank have presented in pairs roentgenograms of patients taken at intervals of several months. The first picture shows shadows of a situation, a magnitude and a density which seem to justify the diagnosis of widespread caseous pneumonia; a few months later these shadows have melted like a thunder cloud. The clinical condition of the patient has correspondingly improved. I cannot but suspect that the seemingly tuberculous consolidation is chiefly the shadow of atelectasis, and, while suspecting, one may guess that kindly nature collapsed the air cells in the diseased area in order to immobilize the inflamed lung and thus accomplish in one way what we do by artificial pneumothorax in another!

It is easy to show that not all parts of the lung are equally susceptible of atelectatic collapse. The Committee of the National Tuberculosis Association appointed to study the lung of the normal child has given us a composite skiagram of the healthy chest which will be shown to you. It will be seen that radii drawn from the hilum to the cortex of the lung can be naturally divided into three parts according as they traverse the inner, middle or outer zone of the lung. The first is stiffened with the large bronchi and arteries; the second in less degree, and the third is composed nearly altogether of air cells. Therefore when the lung is involved in atelectasis it is the outer zone, to a depth of one to one and one-half inches, where the consolidation is most complete.

Now I must invite your attention to the mechanics of the thorax and recall to you certain rudimentary facts: The lungs fill most of the space within the thorax and practically all of the space in either pleural cavity.

If a hole be made in the side wall of the normal chest, the corresponding lung will instantly contract to a small fraction of its former bulk. Why has this lung contracted and why did it stay expanded in the first place? The lung is a multiple air-sac throughout whose structure are woven threads of elastic tissue. When removed from the body the elastic lung collapses somewhat like a deflated rubber balloon, drawn together by its elastic tissue. Why does the lung stay expanded in the closed chest cavity? The reason is illustrated in the diagram to be shown upon the screen. Suppose we tie a glass tube in the main bronchus of a lung and remove the uninjured organ from the body. We choose a glass jar of larger volume than the lung and provided with a close-fitting cork. Two holes are bored in the cork. Into one of these the tube tied in the bronchus is tightly fitted and in the other we insert a bent glass tube with a rubber tube attached on which is a spring clip. Put the lung into the glass jar and make the cork tight. The lung will look exactly as it did before. Now lift the rubber terminal of the second glass tube, put it between the lips and suck air out of the bottle. Behold, instantly the lung begins to swell and it continues to swell with the suction until its surface is flattened over the whole inner side of the glass jar. Now put the clamp on the rubber tube and the lung will remain expanded. I will offer no apology for thus dwelling on the rudiments of the respiratory mechanics. The experiment I have imagined holds the key to the explanation of many of the most complex situations we meet in artificial pneumothorax.

All know that the atmosphere has weight sufficient at sea level to balance a column of mercury 30 inches or 760 mm. high. At this altitude where we live the weight is less and the column would stand at approximately 24.5 inches—say 620 mm.

Before you begin aspirating air from the bottle the air pressure within the lung and of the air in the jar outside the lung are just

the same as that of the air in the room. When you withdraw air from the jar its pressure falls, while that within the lung remains the same.

If the lung were rigid a vacuum could be formed in the jar around it. But the lung is very extensible and the weight of air within it causes it to expand in proportion as the air pressure in the jar is reduced, until the air is all removed and the lung and glass walls are in contact.

The elastic lung is always trying to recoil, to contract; the normal lung never expands actively of itself but only as forced by the inner air pressure.

The elastic pull of the lung has frequently been measured.

It amounts approximately to the pressure of a column of mercury 10 mm. high at the end of inspiration and of 5 mm. at the end of expiration. Opposing this slight contracting force we have the internal atmospheric pressure of hundreds of mm. of mercury.

Now suppose, just before putting the lung into the jar, you press the air out of a single lobe, or any fraction of a lobe, and coat the compressed part with celloidin, or something of the sort, so that it could not expand; that is we produce a local atelectasis. When, now, air is sucked out of the jar the extensible tissue of the lung being reduced in proportion to the volume made atelectatic, it is obvious that the individual air cells of the lung must become excessively distended in order to fill the jar.

The diminished expansile tissue of the lung must become overdistended to a degree necessary to compensate for the extent of our experimental atelectasis. This overdistension of the lung constitutes emphysema, from a Greek word meaning "to inflate."

I will call it physiological emphysema, a condition of overdistension within the limits of elasticity of the lung tissue, in contradistinction to pathological emphysema in which tissue degeneration has diminished normal elasticity. This is a very elementary discussion, but how many doctors realize that every pulmonary condensation, tubercular, pneumonic, atelectatic, carries with it a compensating emphysema.

Let us now consider an actual case: Suppose a considerable area of atelectasis occurs in and near the base of the left lung. That condensation will be compensated by replacement of the lost volume by neighboring structures in strict proportion to their relative mobility. One of these, very easy to demonstrate clinically, is physiological emphysematous dilation of the normal left lung, especially easy to detect in the front by percussion hyperresonance and its lower descent toward the diaphragm. Particularly notable also is the pendular shifting of the mediastinum toward the affected side; this, as I will show you by x-rays of actual cases, can compensate for an extraordinary loss of lung volume. This shifting is very obvious in the skiagram, but one who is accustomed to note the location of the cardiac apex can make a fairly delicate estimate of the extent of displacement of the lower mediastinum. A shifting of the mediastinum to the left involves, of course, hyperexpansion of the right lung. At the same time there will be noted an inspiratory retraction of the lower intercostal spaces, though this is a sign dependent on complex conditions and its meaning will not be pressed. When, as in chronic tuberculosis so often happens, the mediastinal pleurae become stiff and fixed by adhesions, the compensating influence of the contralateral lung may be much reduced if not wholly lost. But all this time the ribs on the affected side have increased their slant, the intercostal spaces are narrowed and the side wall of the chest moves inward. The cusp of the diaphragm on the affected side rises to a higher expiratory position and descends less in inspiration. All these events combine to lessen the pleural space which has to be filled.

The clinical phenomena that have been described have no more to do with medicine, as such, than with the physiology of respiratory mechanics, and they can be demonstrated by any one versed in physical and x-ray diagnosis.

These data all refer to the How of Atelectasis.

The profounder and more important question as to the Why of atelectasis can as yet only be surmised through speculation.

I have already presumed, perhaps unwise-

ly, to suggest that partial, perhaps even complete, atelectasis is a conservative measure through which in the healthy state parts of the lung off duty are put out of the way, as it were, occupying a diminished role in space and in functional demands.

With the advent of disease, as in a lobular pneumonia or parenchymatous tuberculosis, there is reason to suspect that local atelectasis is a constantly concomitant condition, the which possibly conduces to immobilize a tissue in which motion would exaggerate the inflammatory disturbance. Such speculations are worthless except as guides to reasoning, and whether sound or not they must tentatively bow before successful empirical technique which they may seem to oppose.

THE PATHOLOGY OF ATELECTASIS AND ITS RELATION TO PULMONARY INFECTION

REPORT OF TWO FATAL CASES OF BILATERAL POSTOPERATIVE ATELECTASIS*

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Notwithstanding the constantly increasing number of clinical reports of cases of postoperative atelectasis or massive collapse of the lungs, there have been few post mortem studies of the morbid anatomy of this condition. This is due in the first place to the relatively low mortality of the complication, and in the second place to the fact that in some fatal cases the original atelectatic picture is overshadowed and obscured by an inflammatory reaction.

While massive collapse is seldom seen at the autopsy table, other varieties of atelectasis are common and fairly well understood. Chief among these are (1) incomplete expansion of the lungs in the newborn, (2) various degrees of collapse due to compression by fluid or masses in the chest or abdomen, and (3) most common of all, small patches of collapse, usually lobular in extent and generally ascribed to obstruction of bronchioles or small bronchi by secretion or exudate. These ordinary varieties of atelectasis familiarize us with the gross and microscopic picture, but they do not explain the mechanism of postoperative collapse.

Pathologic anatomy of atelectasis

Post mortem descriptions of the lungs are not generally based on the normal expanded state of the organs as they would appear in the living body. In the usual autopsy procedure of opening the chest without clamping the trachea the lungs partly collapse as soon as air enters the pleural cavities. For this reason it is probable that slight or moderate degrees of deflation may be overlooked. Since the post mortem collapse is not complete, more marked or complete stages of atelectasis can be recognized by comparison with the remaining unaffected parts of the lungs. The most noticeable feature is a depression of the pleural surface over the atelectatic region. This is often accentuated by emphysema of the adjacent tissue. The pleural surface is usually smooth and free from exudate, and the outlines of the fibrous interlobular septa are distinctly seen through the transparent surface. The color of the collapsed region is a very dark bluish red. On rubbing the lung between the thumb and fingers the sensation of crackling or crepitation will be absent if the lung is completely airless. Frequently, however, a small amount of air is still present. If a portion of the collapsed lung is cut out and placed in water it will sink.

On section the depression of the collapsed region is not as noticeable as on the pleural surface. The cut surface is dark red and more moist and bloody than the normal lung. The consistency is fleshy and pliable, something like soft rubber, and it is not stiff and friable like the consolidated hepatized lung of pneumonia. It does not tear easily, while the pneumonic lung does.

Microscopically the atelectatic condition is easy to identify, and there is less danger

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of confusing it with pneumonia or infarction. The alveoli are greatly reduced in size, but not equally in all dimensions, so that they often assume the shape of narrow slits. Where the alveolar walls are in close contact it is no longer possible to recognize individual alveoli, but usually there are some in which the cavities are not completely closed. The alveoli may be empty, but frequently they contain serous fluid, desquamated epithelial cells or mononuclear phagocytes and a few red blood corpuscles. Later, the alveoli may be more or less re-expanded by retained secretions and exudate if bronchial obstruction with infection is present.

A very striking feature is the congestion of the capillaries in the alveolar walls. This is probably due primarily to removal of the mechanical tension which keeps the alveolar walls stretched out in the expanded lung, but it may also be due to a decrease of the intra-alveolar pressure when the air is being rapidly absorbed from within the alveoli in cases of bronchial obstruction. MacCallum[1] attributes the congestion to kinking of the veins which prevents the blood from escaping. The condition of the circulation in the atelectatic lung has received much attention. After an exhaustive review and experimental study Coryllos and Birnbaum[2] conclude that the capillary circulation is impaired in direct proportion to the degree of shrinkage and airlessness and is due exclusively to the mechanical shrinkage.

Significance of emphysema in relation to atelectasis

A description of the pathology of atelectasis is not complete without mention of its frequent concomitant, emphysema. Compensatory emphysema may occur from passive overexpansion of lung tissue filling in the space vacated by collapsed lung, but if the overexpansion is recent and the bronchi remain open it may disappear when the lungs are removed at autopsy.

Another variety of emphysema may be present, which is more significant from the pathological standpoint, and that is emphysema due to incomplete bronchial obstruction. It is well established that complete and incomplete bronchial obstruction lead to opposite effects, the former causing atelectasis, and the latter emphysema. The explanation of the distension in case of incomplete obstruction depends partly on the greater force of inspiration compared with expiration, and partly on the fact that the bronchi dilate somewhat during inspiration and contract during expiration. Another cause may be in the valvular action of some types of obstruction which permits air to enter but not to pass out. Obstructive emphysema is apt to persist in the post mortem physema is apt to persist in the postmortem specimens of lungs and therefore is of conemphysema at autopsy in an acute case with massive collapse may be considered as suggesting but not proving the presence of bronchial obstruction. This statement must be made with reservations on account of the necessity of excluding chronic or senile cases in which emphysema may persist on account of permanent stretching of the lung with atrophy of the smooth muscle and elastic tissue. Emphysema along the anterior margins of the lungs is also a common and not very significant finding.

A striking example of the persistence in a post mortem specimen of obstructive emphysema together with obstructive atelectasis was furnished by a recent autopsy on a case of whooping cough pneumonia. The lungs after removal from the body failed to contract, but remained as fully expanded as if the trachea had been clamped with the lungs in a state of inspiration. Scattered through the emphysematous lung were dark red depressed areas, which microscopic examination showed to be partly consolidated with pneumonia but also partly collapsed from stoppage of the bronchi by exudate. The marked persistent emphysema was interpreted as due to partial or valvular bronchial obstruction.

Effect of permanent atelectasis

In long-standing cases of atelectasis the microscopic picture is altered by the disappearance of congestion and the gradual fibrous thickening of the alveolar walls and blood vessels. For a long time a certain degree of re-expansion remains possible, but eventually the alveolar walls adhere together,

obliterating the air spaces and finally the whole region is converted into a pigmented fibrous mass, producing the gross picture of "collapse induration." As a rule obliteration is not complete throughout, but some gland-like cavities remain which are lined by cuboidal or columnar epithelium.

Another sequel of permanent atelectasis may be dilatation of the bronchi in the collapsed lung. This atelectatic bronchiectasis[3] is ascribed partly to weakening of the bronchial walls from inflammation produced by retained secretions, and partly to the contraction of fibrous tissue formed in the surrounding lung.

Etiology of massive atelectasis

William Pasteur,[4] the pioneer in bringing this condition to the attention of the medical profession, has defined it as "total deflation (as opposed to lobular or patchy collapse) of a large area of lung tissue, of sudden onset—in the absence of any signs of obstruction of the air-way or of any known cause of compression—due to failure of inspiratory power and attended by definite physical signs and symptoms." Practically the same definition is given by Bradford in his chapter in Oxford Medicine.

Since the actual cause has not yet been established to the satisfaction of all, and since the prevailing view in most recent reports is that bronchial obstruction is present, it would seem advisable to omit any arbitrary statement as to the presence or absence of obstruction and to shorten the definition to:—Sudden total deflation of a large volume of lung tissue, not due to compression or pneumothorax.

As might be expected all the possible theories which could explain the phenomenon have been advanced, but as some of these are not supported by clinical or experimental evidence they need not be considered here. Full discussions may be found in the excellent papers by Coryllos,[5] Bowen,[6] and others. After eliminating the improbable causes the theories may be reduced to three.

Paralysis or reflex inhibition (usually unilateral) of the diaphragm and intercostal muscles. This theory is still maintained by Pasteur and Bradford,[7] the former being influenced by his early observations on diaphragmatic paralysis following diphtheria, while the latter finds it the only satisfactory explanation of contralateral collapse following injury to the thorax. In view of the important pioneer contributions of these two men their opinions must have great weight.

Obstruction of the lumen of a bronchus by a mucous plug. With the study of Elliott and Dingley[8] the theory of obstruction gained headway, and at the present time is strongly supported. While a tenacious mucous plug has actually been demonstrated in many cases, the majority have not shown such marked obstruction. This leads to the third theory which seems to be the most satisfactory.

Combination of bronchial obstruction with diminished force of respiration. This was first suggested by Elliott and Dingley[8] and has been ably supported by Churchill,[9] and others. According to this view there need be no extraordinarily viscid or tenacious plug in the bronchus, but ordinary mucus or mucopurulent secretions may suffice to obstruct the air-way when the respiratory movements are too weak to dislodge them. There are obviously many factors which may combine to weaken the respiratory efforts. Pain following adbominal operation, unfavorable posture, tight dressings, abolition of the cough reflex by morphine, mechanical interference with the diaphragm, and various other conditions may be responsible. A decrease in the respiratory vital capacity has been shown to follow abdominal operations quite regularly.[10] Coryllos and Birnbaum[11] mention diminished activity of the bronchial cilia as one possible reason for failure to keep the air-ways open.

Some personal experience in attempts to reinflate lungs after autopsies has convinced me that it requires very little in the way of obstruction to prevent the air from entering all parts of the lung at a uniform rate. If the lungs are pumped up through the trachea one lung may be fully inflated while the other remains practically collapsed. Different lobules in the same lobe fill up at a different rate and some may be inflated to the point of rupture before others are at all expanded. Changing the position of the lobes

and manipulating the tissue may gradually bring about an even inflation. The temporary obstructions are probably produced by nothing more than bending of the bronchi or the presence of small amounts of secretion.

In a very important recent article Henderson[12] points out the role of acapnia or deficiency of carbon dioxide in the blood and tissues in the production of postoperative atelectasis. As a result of deficiency of carbon dioxide the respiratory center of the brain does not receive its normal stimulation and the lungs assume what he calls the acapnial position which is near that of normal expiration. In this state of partial deflation shallow breathing fails to keep the airways clear of mucus and atelectasis may result.

The theory that a spasmodic muscular contraction of the bronchi with or without bronchial secretion may cause massive atelectasis is contrary to clinical experience, since in the best known example of bronchial spasm, bronchial asthma, the regular result is emphysema.

Evidence from autopsies

In view of the diversity of theories it might be hoped that autopsies on fatal cases of massive collapse would settle the dispute, particularly with regard to the presence or absence of bronchial obstruction. However, a review of the published records leaves one in the same state of uncertainty as before. As already pointed out comparatively few cases have come to autopsy. In the majority of these no definite bronchial obstruction was found. Some of the earlier reports such as Pasteur's[13] are unsatisfactory because the bronchi were not always carefully examined. Jackson and Lee[14] reported two cases in which definite bronchial plugs were found after death. Bergamini and Shepard[15] on the other hand had two fatal cases of bilateral atelectasis in which the bronchi were clear. Ball[16] reports four autopsies on massive collapse following thyroidectomy. In two of these the lumina of the bronchi were apparently clear; in the other two they contained mucus, but without definite plug formation. Berry[17] had two deaths with massive collapse following thoracoplasty. In one a bronchial plug was found.

Evidently the postmortem findings have not been uniform and still permit the consideration of more than one cause.

We have had two fatal cases of bilateral massive atelectasis at the Colorado General Hospital. The bronchi were carefully explored at autopsy in both cases, but no obstructions could be found.

Case Reports

Case 1. Female, aged twenty-seven, primipara was delivered after a moderately difficult and slightly prolonged labor. During the second stage a left lateral episiotomy was performed under light chloroform anesthesia. A second degree laceration occurred through the episiotomy wound. The child was cyanotic at birth and stopped breathing after a few spasmodic respirations. After artificial respiration for five minutes the breathing became normal and the child survived.

The mother's general condition following delivery was good. The pulse was of good quality and the respiration was normal. She was placed under ether anesthesia for repair of the perineum. The repair was completed in twenty-five minutes, but just as the patient was being let out of anesthesia there was a sudden slowing of the respiration and she became pulseless. Caffeine, adrenalin, oxygen, and artificial respiration were used without effect.

The autopsy was performed twenty-six hours postmortem by Dr. Frederick Summerill. On opening the body cavities a strong odor of ether was noticed. A bilateral massive atelectasis was found. The right lung weighed 545 grams. The external surface was very dark red, almost black, except for a small emphysematous area along the anterior margin. The lung tissue was fleshy, noncrepitating, and sank in water. A dark red nonfrothy fluid exuded from the cut surface. The left lung weighed 350 grams. Its appearance was similar to the right. The trachea and bronchi showed reddening of the mucosa, but the lumina contained no fluid and showed no evidence of ob-



Fig. 1. Postoperative massive atelectasis. Case 1. Photomicrograph of microscopic section of lung showing practically complete deflation.

struction. The pulmonary arteries contained no thrombi or emboli.

Microscopic examination of the lungs showed atelectasis varying from partial to complete (see fig. 1). There was some edema and hemorrhage. Some of the pulmonary capillaries were filled with leucocytes and were apparently thrombosed. The trachea and larger bronchi showed congestion and edema, with partial desquamation of the epithelial lining. In some areas small masses of mucus and polymorphonuclear leucocytes rested on the surface of the mucosa without blocking the lumen.

Case II. Female, aged twenty-three, was admitted to the hospital for osteomyelitis of the tibia, following the use of a silver plate for reduction of a fracture five years before. She was very obese but otherwise in good condition. Under gas-oxygen anesthesia the focus of osteomyelitis was curetted and cauterized. Five minutes after removal from the operating room she stopped breathing, although the pulse remained good. Artificial respiration was given, and intratracheal insufflation of 5 per cent carbon dioxide in oxygen. Later the pulmotor was used. The pulse continued small and regular, but she made no spontaneous effort at respiration and died three hours after the operation.

An autopsy was performed nineteen hours post mortem by Dr. F. E. Becker. A bilateral massive collapse of both lungs was found. There was no evidence of bronchial obstruction or of pulmonary embolism or thrombosis. Microscopic examination showed the deflation of the lungs marked, but for the most part not complete. In addition to obesity there was further evidence of constitutional abnormality in a large thymus (35 grams) and a small adenoma of the pituitary. In view of the possibility of a lesion of the respiratory center the brain was examined carefully, grossly and in microscopic sections, but no lesions could be found.

Comment on Cases

The history and findings in the first case suggest that over-etherization may have had an important bearing on the pulmonary collapse. Commenting on two cases of sudden bilateral collapse reported by Bergamini and Shepard,[15] Coryllos[5] offers the explanation of rapid absorption of the anesthetic mixture from the lungs into the blood. Without bronchial obstruction it would seem that some additional factor must be involved.

The second case was undoubtedly constitutionally abnormal, and a poor operative risk. The record suggests some effect on the respiratory center rather than local pulmonary disturbance, but the failure to obtain any response to carbon dioxide inhalation before death and the absence of demonstrable lesions in the brain after death leave the mechanism unsettled.

While we are unable to explain these two cases fully, they do indicate that other factors besides the purely local thoracic conditions must be taken into consideration.

Relation of atelectasis to pneumonia

It has long been taught that the atelectatic lung is apt to become infected and to develop pneumonia. There is no doubt that the two conditions are frequently associated, especially in children, but on the other hand the great majority of cases of atelectasis including the postoperative variety, do not result in pneumonia. According to Henderson[12] the mortality from postoperative pneumonia is about four in each thousand major surgical operations, while some degree of atelectasis occurs after between 10 to 20 per cent of operations. In 261 abdominal operations Sheret[18] found 42 cases of pulmonary collapse but only 1 pneumonia.

It is doubtful whether atelectatic lung tissue is necessarily less resistant to infection than aerated lung. The significant point is rather the condition of the bronchi. If they are obstructed by secretion or exudate containing pathogenic organisms infection will naturally spread more easily to the alveoli than in cases where the air-ways remain draining freely. In cases of bronchial infection atelectasis may appear during the course of the inflammation if the bronchus is obstructed for some time before exudate accumulates in the alveoli. If infection is more virulent and exudate accumulates more rapidly there will be less time for collapse and it will occur to a lesser degree. Coryllos and Birnbaum[19] consider that lobar pneumonia begins with atelectasis, due to obstruction of a large bronchus with a peculiarly viscid and tenacious exudate characteristic of the pneumococcus. While this will require further proof before general acceptance it provides a fairly satisfactory explanation of several features of the disease, especially in the lobar distribution of the lesion.

In children, owing to the smallness of the bronchi, occlusion is easily produced and therefore in these young patients various degrees of atelectasis are common accompaniments of pneumonia, especially of the bronchial or lobular type.

Summary

Atelectasis, especially of the patchy or lobular variety is a common finding at autopsy, but there have been comparatively

few postmortems on cases of postoperative massive collapse. The most satisfactory theory regarding the latter condition is that it is due to a combination of bronchial obstruction with diminished force of respiration. The findings in autopsies have not been constant. Bronchial obstruction has been present in some and absent in others. Two autopsies are reported on cases of bilateral postoperative massive collapse in which no obstruction could be found. Atelectatic lung tissue in itself is probably no more susceptible to infection than normal lung, but, if the atelectasis is produced by obstruction with material containing virulent organisms, infection may spread into the obstructed lung with resultant pneumonia.

REFERENCES

[1]MacCallum, W. G.: Text-book of Pathology. 4th Ed. Philadelphia: W. B. Saunders Co. 1928.

[2]Coryllos, P. N., and Birnbaum, G. L.: The circulation in the compressed, atelectatic, and pneumonic lung. Arch. Surg., 19: 1346, 1929.

[3]Pinchin, A. J. S., and Morlock. H. V.: Atelectatic bronchiectasis. Brit. Med. J., 1:12 (Jan. 4) 1930.

[4]Pasteur, W.: Massive collapse of the lung. Brit. J. Surg., 1: 587, 1914.

[5]Coryllos, P. N.: Postoperative pulmonary complications and bronchial obstruction. Surg., Gynec., and Obst., 1:795, 1930.

[6]Bowen, D. R.: Acute massive collapse (atelectasis) of the lung. Am. J. Roentgen, 21: 101, 1929.

[7]Bradford, J. R.: Massive collapse of the lungs. Lancet, 1: 331, 1930.

[8]Elliot, T. R., and Dingley, L. A.: Massive collapse of the lungs following abdominal operations. Lancet, 1, 1305, 1914.

[9]Churchill, E. D.: Pulmonary atelectasis, with especial reference to massive collapse of the lung. Arch. Surg., 11: 489, 1925.

[10]Churchill, E. D., and McNeil, D.: The reduction in vital capacity following operation. Surg., Gynec., Obst., 44: 483, 1927.

[11]Coryllos, P. N., and Birnbaum, G. L.: Lobar pneumonia, considered as pneumococcic lobar atelectasis of the lung. Arch. Surg., 18: 190, 1929.

[12]Henderson, Y.: Acapnia as a factor in postoperative shock, atelectasis and pneumonia. J. A. M. A., 95: 572 (Aug. 23), 1930.

[13]Pasteur, W.: Post operative lung conditions. Lancet, 1; 1329, 1911.

[14]Jackson, C. and Lee, W. E.: Acute massive collapse of lungs. Ann. Surg., 82: 364, 1925.

[15]Bergamini, H. and Shepard, L. A.: Bilateral atelectasis (massive collapse) of lung. Ann. Surg., 86: 35, 1927.

[16]Ball, R. P.: Pulmonary atelectasis following thyroidectomy: Report of 4 cases with observations at necropsy. Arch. Path., 5: 763, 1928.

[17]Berry, F. B.: Massive atelectasis complicating paravertebral thoracoplasty for pulmonary tuberculosis, Arch. Surg., 18: 257, 1929.

[18]Sheret, J. E.: Massive collapse of lungs. Proc. Roy. Soc. Med. (Sect. Electro-Therap.), 23: 11, 1930.

X-RAY DIAGNOSIS

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The technical part of a bedside x-ray examination of the chest of a surgical patient in the hospital is such a simple and relatively inexpensive procedure that it deserves a higher than the usual precedence in the minds of the physicians in attendance upon a case of suspected intrathoracic pathology. Recent experience, indeed, has indicated that this type of x-ray examination is of great value even when performed before operation. Preoperative plates have proved it to be invaluable in more than a few cases by demonstrating pathology overlooked by the stethoscope and by serving as a means of comparison to clarify x-ray signs discovered in postoperative examinations.

The position of the bedside x-ray in the sequence of procedures ordered on operative cases with chest complications would be advanced if we could firmly establish the idea that this type of patient is best served by a team of physicians, one of which is a roentgenologist. The entire personnel of such a team, when they are available, should be the surgeon, the internist, the bronchoscopist and the roentgenologist.

The purpose of this portion of the symposium is to describe the diagnostic role played by the x-ray in postoperative chest complications with special reference to atelectasis.

Figures 1 and 2 indicate the facility with which a bedside plate of the quality of those illustrating this article can be accomplished. This type of bedside x-ray examination of the chest probably fatigues the patient less than a complete physical chest examination.

It takes less technical skill to produce good bedside plates in the patient's room, than a relative quality in routine chest plates made with the stationary equipment in the radiographic room of the x-ray department. Even the smallest hospitals can afford a good bed-

side x-ray unit. Many smaller institutions and some of larger size depend on this type of apparatus for all their x-ray work. If a hospital cannot have both a regulation x-ray unit and a bedside unit, the latter should be the first purchase.

A proper presentation of the current roentgenological phase of the subject of atelectasis in relation to surgical patients demands a resumé, at least, of each of the following points: (1) The behavior of the diaphragm following operation as exhibited by the x-ray plate; (2) the discovery, evaluation and cause of the x-ray signs of atelectasis and the evidence they give concerning the mechanism of atelectasis; (3) the common types of atelectasis classified according to the x-ray evidence; (4) the necessity of close cooperation between the roentgenologist and other members of the medical team to render the most accurate diagnosis and prognosis.

Postoperative behavior of the diaphragm

In a series of fifty-three cases in the Presbyterian Hospital of Denver, x-rayed before and after operation, it was forcefully demonstrated by the plates obtained that one hemidiaphragm, generally, but not always, the right, assumed a high position following operation, in no less than nineteen cases. Figures 3 and 4 represent a typical case.

A review of the anatomy including the origin and insertion of the diaphragmatic muscle quickly reveals that, in order to maintain a constantly high position of even contour, even during inspiration, with no evidence of liver enlargement, a hemidiaphragm must have lost its supply of motor nerve impulses. The origin of the diaphragm is far below the insertion, therefore spasticity would cause descent of the dome so affected. Paralysis of the nerve supply, causing flaccidity or passivity of the muscle, would permit ascent of the dome into the rigid walled upper body cavity because it becomes a floating partition between it and the flaccid walled abdominal portion of the same cavity. Atmospheric pressure on the abdomen, thus, would balloon the enervated portion of the diaphragm upward until activity returned. We have stated that in our series the right



Fig. 1. Placing film holder behind patient preparatory to making a bedside chest x-ray examination. See Figure 2.

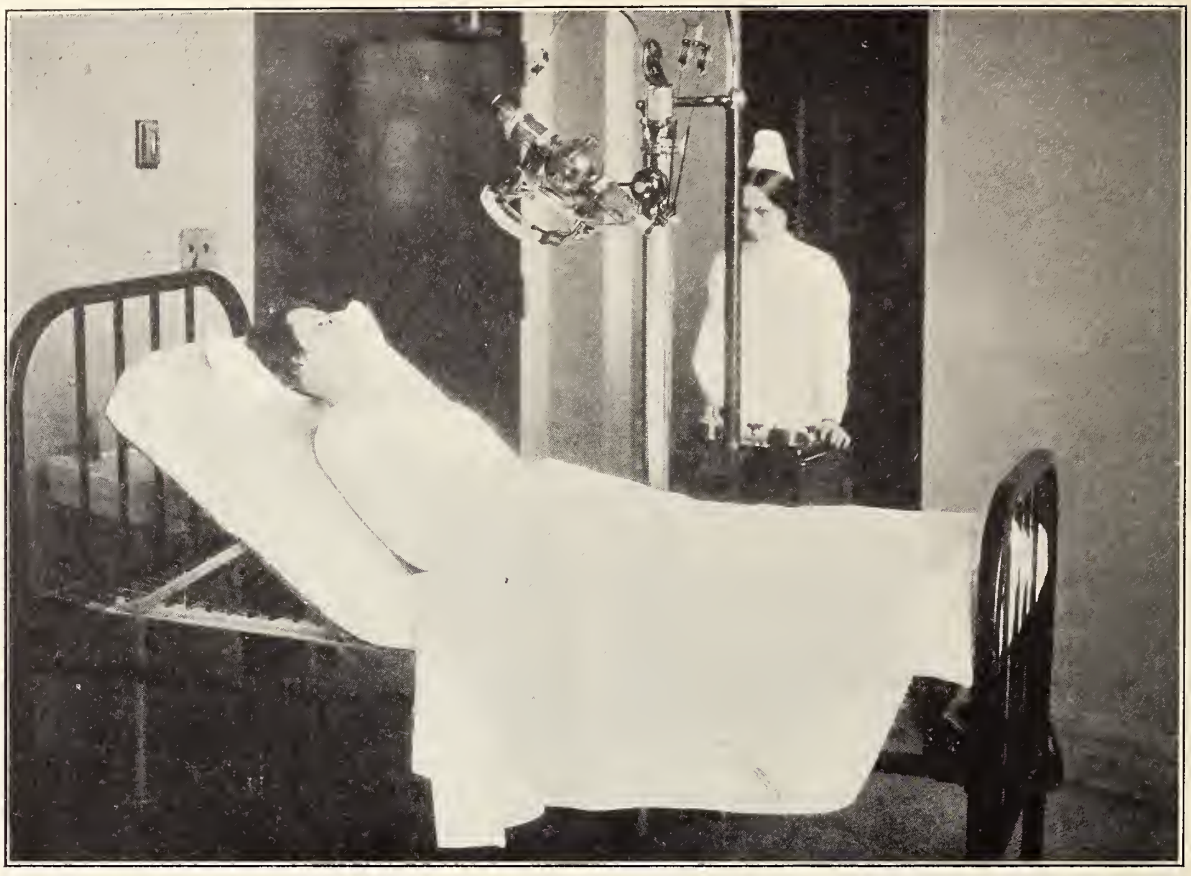


Fig. 2. Position in which exposure is made in bedside chest x-ray examinations. See Figure 1.

diaphragm is most often affected. In some cases the left has shown paralysis following operation. It is quite possible that in many cases of this group both diaphragms have been inhibited.

Only those cases have been included in the statistics presented, which have shown a discrepancy in the relation between the height of the two domes of the diaphragm as measured against one another before and after operation. Pendergrass and his co-workers[1] have stated their belief that both are affected in practically all abdominal cases. The report of their work came to our attention after the first draught of this paper was prepared. They, however, have measured the ascent of the dome by using the vertebrae as a criterion. Because of pain, especially in abdominal cases, we believe that a patient will voluntarily refrain from inspiring as deeply after operation as before. The reason, therefore, we have accepted only those cases which show a definite ascent of one diaphragm in relation to the other, is to obviate this criticism and also the accusation of error by the possible variance of the technique of bedside radiography.

When one hemidiaphragm has changed its normal relation to the other, the realm of voluntary restriction of respiration has been left and entrance made into the realm of pathology. This diaphragmatic relaxation was found not only after abdominal operative cases but after other types of surgery. It occurred with all common types of anesthetics and with local anesthetics. The location of the abdominal incision made no material difference in its occurrence.

A discussion of atelectasis by the roentgenologist requires the inclusion of the above findings in that discussion.

It cannot be denied that a lung which is deprived of its most important muscle of respiration is less capable of expelling mucus from the bronchi and bronchioles than one normally ventilated. In this connection, several cases of unsuspected atelectasis found in our series were noted to occur most often in those operations which cause the most bronchial secretion, namely, thyroid operations. Furthermore, the supposition that se-

cretions in the bronchial tree have something to do with atelectasis, and that the paralyzed diaphragm prevents normal clearing of these secretions by respiration is strengthened by the fact that atelectasis occurs most often in the right lower lobe.

In the light of this finding the paralytic diaphragm cannot be ignored as possibly one predisposing factor if not a contributory cause of postoperative atelectasis.

The right diaphragmatic dome is more often affected than the left. Postoperative atelectases occur more often on the right than on the left.

Considering all these points it appears that some relationship exists between postoperative atelectasis and the postoperatively paralyzed diaphragm. While the demonstration of inhibition of the diaphragm contributes to the often repeated theory of paralytic collapse of the lung as an etiological factor in atelectasis, it does not detract but rather enhances the importance of mucus blocking of the air passages. Our series exhibits many cases of paralyzed diaphragms with no sign of atelectasis present. This argues against paralytic collapse as the sole cause of atelectasis. In any event, stimulation of the auxiliary muscles of respiration by carbon dioxide

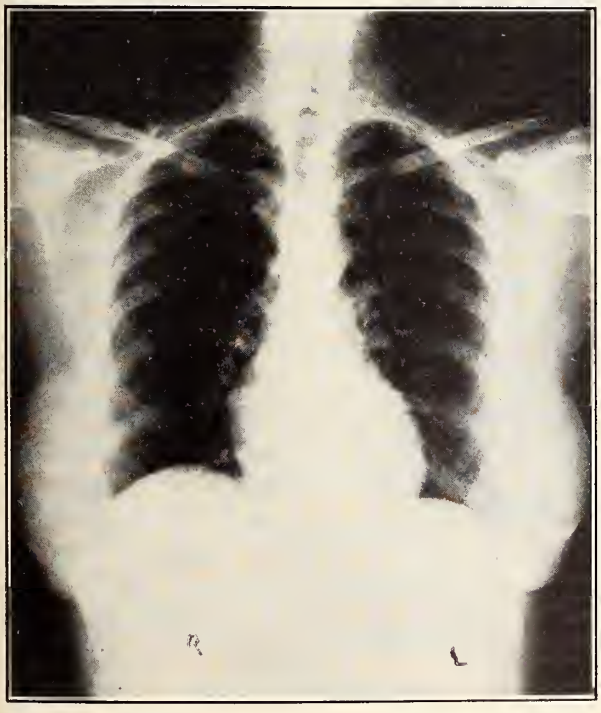


Fig. 3. Major surgical case. X-ray one day prior to operation. Note relative positions of hemidiaphragms.

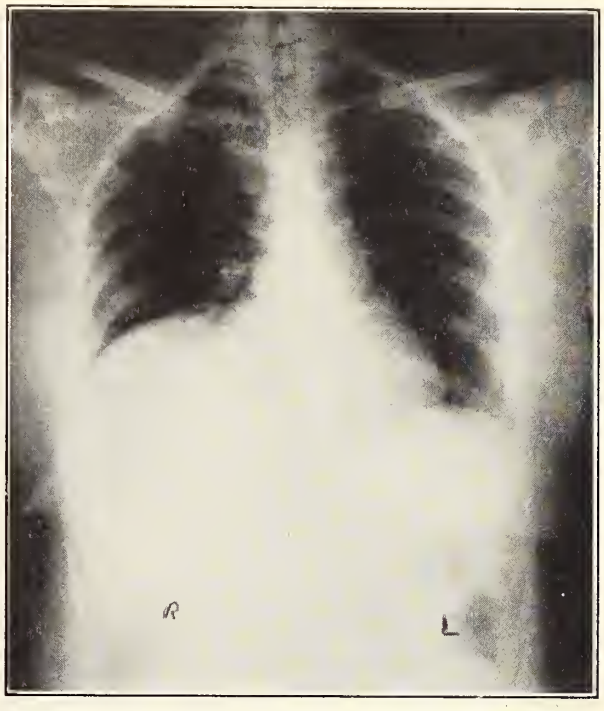


Fig. 4. The same patient as shown in Figure 3. Note marked ascent of right hemidiaphragm.

as presented by other members of the symposium seems to be one logical method of removing mucus plugs and preventing the formation of them in the poorly respiring lung. The good results reported by carbon dioxide therapy and the rather dramatic improvements noted following bronchoscopy also strengthen the reasoning evolved from the findings exhibited by the x-ray.

Thoughtful observation of the cases in this x-ray series improves our interpretation and evaluation of signs in our x-ray search for postoperative lung pathology.

X-ray signs of atelectasis

Seldom, if ever, do we find all the x-ray signs of atelectasis in one plate. To find all the signs in one case is no more to be expected in an x-ray examination than in a physical examination. It is appropriate, however, to enumerate here and briefly explain all the common x-ray signs of massive atelectasis.

Displacement of the heart, mediastinum and sometimes the tracheal shadows toward the affected side: As the air in the portion of the lung separated from access to the outside air and atmospheric pressure is absorbed by the circulation,[2] atmospheric pressure to which the unaffected lung still has access,

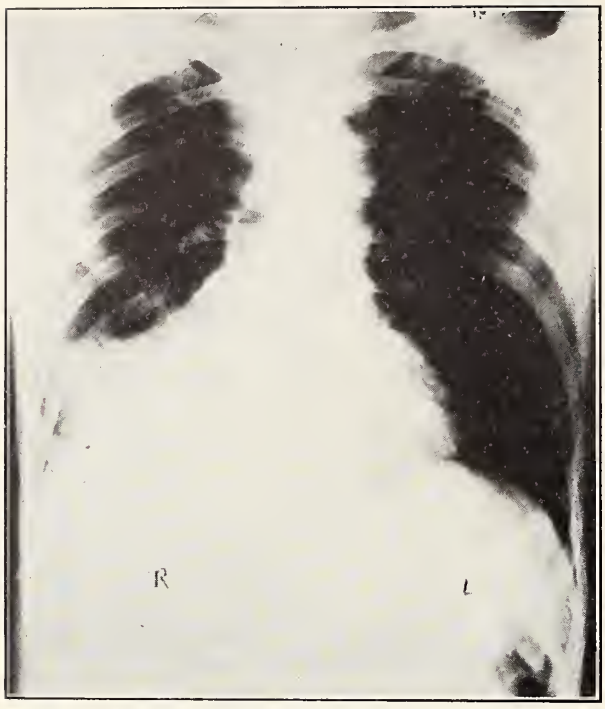


Fig. 5. Note extreme density of small area of atelectasis at right base See Figure 6 and text.

working through that lung which undergoes emphysema, displaces the mediastinal structures toward the compressed lung, thus striving as nature always does to prevent a vacuum in the area of the absorbed air of the atelectatic lung.

High diaphragm on the affected side: The rigid walled thoracic cavity cannot retract sufficiently to compensate for the space vacated by the air absorbed in large atelectatic involvements and, if the mediastinal structures do not take up the space, the diaphragm balloons upward because of the atmospheric pressure on the abdomen, the distance depending on its tonicity.

It has been noticed that in some cases the mediastinum will shift more in relation to the ascent of the diaphragm than in other cases of equal degree and similar site of involvement. Probably, in the light of the postoperative behavior of the diaphragm as it has been described, atelectasis with a disproportionately high position of the diaphragm, was preceded and is accompanied by paralysis of that dome. In a flaccid condition it would be ballooned up much higher by abdominal pressure in compensating for the absorbed air than would a normally tonic hemidiaphragm, and thus relieve part of the shift of the mediastinal structures.

The occurrence of this discrepancy in the relative displacement of the mediastinum and diaphragm in cases of apparently equal atelectatic involvement strengthens an opinion of the occurrence of atelectasis both with and without paralyzed diaphragmatic muscles.

Decreased radiolucence of the atelectatic area: A glance at Figure 5 reveals the extreme density of even a small area of atelectasis. The voluminous recent American literature on the subject of atelectasis discusses x-ray density less than many other signs.

The density of acute atelectasis is practically the same as that of the heart and mediastinum, indicating an almost absolute absence of air. Extremely small amounts of air in soft tissues is plainly represented by a darkening on the radiographic film.

Mere contraction or collapse of the portion of the lung involved causes very little increase of density. Note Figure 6 in which the lower right lobe is permitted to contract by the introduction of air into the pleural cavity. This lung tissue is collapsed far be-



Fig 6 Note collapsed lower right lobe permitted by pneumothorax. Greater contraction than in the atelectatic right lower lobe shown in Figure 5 and yet there is still marked radiolucence. See text.

yond the collapse exhibited by the atelectatic portion of the lobe in Figure 5 yet there is very little decrease of radiolucence. Some other factor complicates the atelectatically collapsed lung to produce such density. That is undoubtedly the blockage of access to the outside atmospheric pressure preventing renewal of the air which is absorbed by the circulation. The lung collapsed to a greater extent by pneumothorax maintains its communication with outside air and the x-ray plate demonstrates the large amount of air still contained in it. Even if contracted to half the size shown in Figure 6, a plate of which condition is on file, marked radiolucence remains denoting much air still present. Bowen[2] writes:

> In a recent conversation, Dr. Sante pointed out what seems to be the real source of this density, i. e., engorgement of the vascular system. This is of course logical. We have an active potential vacuum sufficient to depress intercostal muscles, elevate the diaphragm and displace the mediastinum. An immediate source of partial relief is the vascular system. The blood and lymph channels become engorged as readily as do the subcutaneous channels when a patient is "dry cupped."

These statements seem logical and doubtless compensatory engorgement of the small lung vessels does increase the density, after a "potential vacuum" has been created by blockage from access to the outside air which prevents renewal of the air absorbed. As the pneumothorax case demonstrates there is no "sucking" on the vessel walls, chest wall, mediastinum and diaphragm no matter how completely the lung collapses, as long as the air supply to the inside of the lung is inexhaustible. Should the bronchioles, or bronchi, leading to the trachea from the pneumothorax collapsed lung, become blocked and no increase of air be permitted to enter the pleural cavity, the density would immediately increase as fast as the air was absorbed. Following bronchial blockage the compensatory swelling of vessel walls would take place, exudation begin and, doubtless permitted by their elasticity, some stretching of the soft tissues to aid in filling some of the space from which the air is absorbed.

Increased radiolucence on the opposite side: This occurs to a noticeable extent only in massive cases involving a lobe or more and is brought about by compensatory emphysema of the sound lung. In this connection, Dr. Henry Sewall has called attention in his portion of this symposium to the compensatory emphysema and thus increased radiolucence of the normal lobe or lobes of the affected lung. Stephenson[4] has also called attention to this point.

The compensatory emphysema of the unaffected side is best demonstrated by the x-ray in the lateral view. The x-ray signs of emphysema with the lateral technique are: horizontal position of the ribs, enlarged precordial air space, and flattening of the domes of the diaphragm.

Narrowing of the rib spaces: Atmospheric pressure on the outer thoracic wall has some effect when atmospheric support for the inside has been removed by bronchial occlusion. Narrowing of the entire hemithorax can be demonstrated in some cases.

Affected lung curves toward the spine; opposite lung curves away from the spine: These signs pointed out by Bowen[2] are unimportant. Obviously if the emphysematous lung displaces the mediastinum away from it there will be a curving of the lung toward the midline. The converse is true of the affected lung.

The heart moves toward the affected side on inspiration: This is demonstrated most dramatically by the fluoroscope but plates made at inspiration and expiration show very plainly that there is a to and fro motion of the heart with respiration.

This phenomenon is produced most classically in atelectasis cases caused by foreign body blockage of the bronchi. Incidentally, in ball valve foreign body cases of obstructive emphysema the heart also moves toward the affected side. The sound lung in either case is the one which is active and on inspiration actually pushes the heart toward the passive lung field. It is permitted to return somewhat toward the midline on expiration when the sound lung depletes. The occurrence of this x-ray sign in massive atelectasis to almost the same degree as in foreign body bronchial blockage atelectasis, is additional evidence in favor of bronchial occlusion during some stage at least, in postoperative atelectasis.

Restriction of the diaphragm on the affected side: This sign is detected best by the fluoroscope in the few cases of postoperative atelectasis permitted to go to the fluoroscopic room. Plates made at inspiration and expiration will also demonstrate restriction. The diaphragm dome on the affected side of lower lung atelectasis can seldom be identified because its shadow merges with the equally dense atelectatic area. Whether it is paralyzed or not, it is difficult for even a normal hemidiaphragm to contract against the atmospheric pressure on the abdomen when the same pressure has been removed from above.

As has been stated, the pressure which causes compensatory emphysema of the sound lung also flattens the diaphragmatic dome on the unaffected side.

An x-ray classification of the types of atelectasis

The practice of roentgenology in a hospital requires the recognition of only two main forms of acute atelectasis. These are massive and localized.

Atelectasis might be considered massive when the area involved is large enough to require shifting of the mediastinal structures or ascent of the diaphragm or both to compensate for the air absorbed. The x-ray signs thus far enumerated denote the massive type only, in which the x-ray evidence alone is generally sufficient to make a diagnosis.

The localized type does not have as clear cut x-ray signs and requires close co-operation between the members of the medical team to produce accurate diagnoses. The presence on x-ray plates of the lungs of small or large patches of relatively great density, in a patient exhibiting the physical signs, symptoms and history of atelectasis as described elsewhere in the symposium, is strong confirmatory evidence of localized atelectasis. If daily or more frequent x-ray examinations are made which show rapid changes in the density and location of some lesions and reveal others to be of fleeting character, the x-ray evidence then requires proof that the case is not one of localized atelectasis.

Persistence of the densities with slower changes in their character must bring to mind in postoperative cases, such conditions as infarct, embolism, abscess and bronchopneumonia. Close concurrence between the internist and the roentgenologist will best serve the patient at this time. The findings of the internist can rule out some of the roentgenological possibilities and the x-ray signs can obviate some of the conjectures presented by physical examinations.

Infarct is not always easily differentiated from localized atelectasis even by the combined efforts of the medical team. It has, perhaps, more propensity to be single, accompanied at times by vague indefinite densities in the opposite lung. There is an inclination to occurrence at a later period after operation than atelectasis, and it is generally accompanied by rusty sputum. Infarct is not of the fleeting and changeable character on the x-ray plate that localized atelectasis exhibits. Evidence of its presence will not disappear after cough or bronchoscopy or administration of carbon dioxide.

Embolism causes less accurately defined shadows than atelectasis which have more tendency to reach out from the hilum region. It causes a more permanent shadow and also often causes blood spitting. Atelectasis occurs sooner after the operation. The shadows caused by embolism may not be nearly as dense for their size.

Abscess may be a sequel of an atelectatic area which is not drained (so-called chronic atelectasis) and thus, of course, in its early stages cannot be differentiated. It is more persistent than atelectasis, later the density is more mottled and cavity formation and a fluid level, may be exhibited. Atelectasis usually has sharper margins with no hazy surrounding inflammatory zone as is often seen in abscess formation. Some abscesses, however, may exhibit a sharp outline but have a proclivity to be rounder in shape and less tongue-like[3], whereas atelectasis appears suddenly and is immediately very dense. Abscess may be manifested only as a faint, filmy pneumonitis at its inception.

Early bronchopneumonia and small multiple areas of localized atelectasis cannot be differentiated by an x-ray examination. If

the internist reports toxic signs and laboratory evidence of infection, the x-ray man must report in terms of bronchopneumonia. If exactly the same appearance is present without clinical evidence of infection, localized (or lobular) atelectasis is the proper report. Nevertheless x-ray observance of this type of case is invaluable by definitely locating the pathology, demonstrating its course and changes and heralding complications such as beginning abscess, fluid collections, massive atelectasis and passive congestion.

Either massive or localized atelectasis may be traumatic or non-traumatic. Figures 7 and 8 represent the chest x-ray plates of a case in which are demonstrated large localized areas of atelectasis which occurred spontaneously and was diagnosed pneumonia by one physician. Another recognized the probability of atelectasis because of the lack of toxic and infective, clinical and laboratory, signs. The x-ray confirmed his findings, the patient was not treated early, however, and one of the atelectatic areas did not drain and continued on later as a typical area of lobar pneumonia.

Thus, to recapitulate, for practical roentgenological procedure in an x-ray department of a hospital, acute atelectasis divided into massive and localized types, suffices to convey an idea of the pathology in the x-ray report.

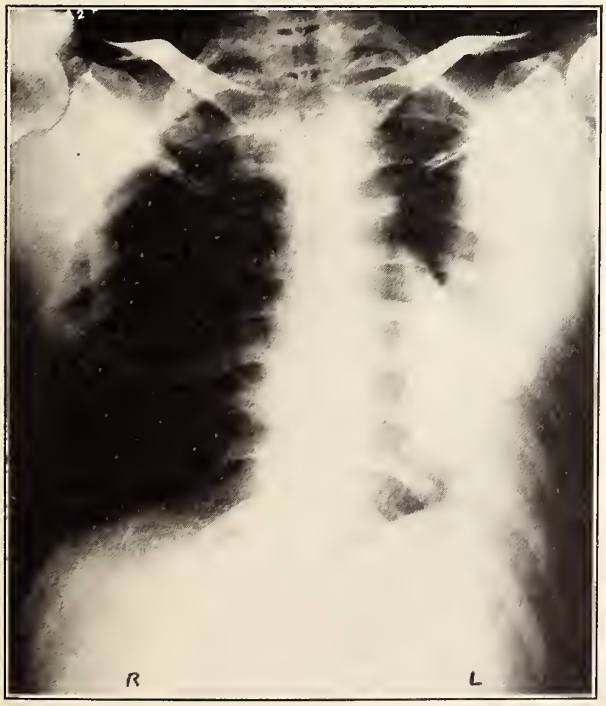


Fig. 7. In which the x-ray exhibits a case of non-traumatic localized areas of atelectasis. See Figure 8.

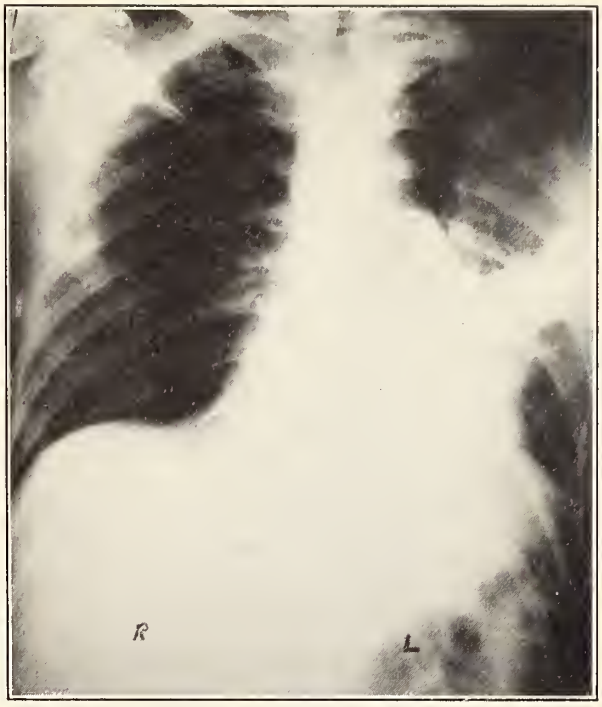


Fig. 8. Same case as Fig. 7 three days later. Three localized areas of atelectasis have cleared. One remains and lobar pneumonia in this area ensued.

Conclusions

1. One or both domes of the diaphragm are inhibited following operative procedures in some cases. This must be considered in interpreting x-ray examinations of the chest in postoperative cases. This condition may influence the occurrence of atelectasis.

2. The x-ray signs of massive atelectasis are definite and are alone often sufficient evidence for a diagnosis.

3. Localized atelectasis is more difficult to differentiate from other conditions by x-ray examination. Close co-operation between members of a medical team is required for accurate diagnosis.

4. A convenient x-ray classification of acute atelectasis is: (a) massive, (b) localized.

REFERENCES

[1]Mueller, G. P., Overholt, R. H., and Pendergrass, E. P.: Postoperative Pulmonary Hypoventilation. Arch. Surg., 19:1322 (Dec.) 1929.

[2]Brown, David R.: Acute Massive Collapse of the Lung. American Journal Roentgenology and Radium Therapy, 21:101 (Feb.) 1929.

[3]Holmes, G. W.: Roentgen Observations in Massive Atelectais and Postoperative Pneumonia. J. A. M. A., 93:100 (July 13) 1929.

[4]Stephenson, F. B.: Lobar and Central Pneumonias in Children, Amer. Journal of Roentgenology and Radium Therapy, 21:574 (June) 1929.

ATELECTASIS: ITC CLINICAL SIGNS, SYMPTOMS, DIFFERENTIAL DIAGNOSIS AND TREATMENT

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The condition of atelectasis and massive collapse of the lung has been recognized for many years, but W. Pasteur is given credit for first describing this condition. In his papers of 1911 and 1914, he so thoroughly describes this condition that little can be added to our knowledge of this subject. However, as atelectasis happens more frequently than is recognized, I wish to call attention to the various forms in which it may occur, the clinical picture it presents, some of its different symptoms and signs, and a few suggestions as to treatment.

There seems to be some confusion among certain members of the profession, as to the terminology used to describe atelectatic conditions, so I will briefly outline a classification of atelectasis, based on descriptions of this condition by Dr. F. L. Lord, Dr. G. W. Norris, Dr. H. R. M. Landis and other eminent clinicians.

Atelectasis is a condition of the whole or a part of the lungs, in which there is a persistence of, or return to, a fetal and airless state.

Atelectasis may be classified as follows: (a) congenital atelectasis (found soon after birth); (b) acquired atelectasis: (1) due to obstruction of the air passages; (2) due to retraction or compression of the lung.

Massive collapse is a term used when the deflated area is large, as the entire lung. Massive collapse may occur with either bronchial obstruction, or retraction or compression. It may occur without either of these causes as by a paralysis of the muscles of respiration, due to some toxic cause or to damage to the respiratory center.

Obstructive atelectasis may be observed in various conditions which obstruct the free passage of air in and out of the bronchial tubes. Infectious diseases in which tenacious secretions occlude the bronchi are a common cause. Weakness of the respiratory muscles may be a predisposing factor in the retaining of these secretions, made more effectual by lying on the back or any fixed position for a long period of time. Bronchial tumors, fibrinous or mucopurulent secretions, aspirated foreign bodies, compression from enlarged glands or growths in the mediastinum may also be a cause of obstructive atelectasis.

Retraction or compression atelectasis may be due to encroachment upon the pulmonary space by accumulation of fluid or gas in the pleural cavity, enlargement of the heart or fluid in the pericardial sac, elevation of the diaphragm as from metcorism or ascites, pressure from outside the chest wall as posture or pressure, and tumors in the chest wall or thoracic structures causing pressure. Compression atelectasis occurs when a fully contracted lung is subjected to a force that still further diminishes its size. The pathogenosis of these two types I will leave to other contributors to this symposium.

Atelectasis of different degrees of intensity may very often occur along with other conditions, such as pleural fluid, pulmonary embolism, pneumonia and pulmonary abscess.

Symptoms and signs of congenital atelectasis

The infant usually is feeble or poorly nourished, may refuse to nurse, cries feebly, if at all, and is dull and drowsy. Breathing is rapid and shallow, cyanosis is marked and gradually increases. The pulse is feeble, the veins are dilated and the extremities are relaxed and cold. There may be convulsions or muscular twitchings as death nears. The physical signs are like those found in pneumonia with which it is often confused. The percussion note is usually dull and may be hard to elicit, especially in unilateral cases. If the bronchi are plugged there is diminished or absent breath and voice sounds and diminished or absent vocal and tactile fremitus. However, if the area is large, bronchial breathing may be present with an increase of vocal fremitus.

Symptoms and signs of acquired atelectasis

In post-operative cases massive collapse may develop one to two days after operation,

and it has been reported as late as thirteen days. The onset is sudden with dyspnea, rapid pulse and respiration, and marked cyanosis. Pain in the chest may or may not be present, and there is usually no chill. The temperature may be elevated to 102° or 103.° Cough is present and the sputum is mucopurulent with no blood. The white count, as found in a series of cases studied by Dr. Kenneth D. A. Allen and myself, usually averages between 15,000 and 20,000.

In acquired atelectasis of the obstruction type dyspnea usually is intense, the breath sounds, voice sounds, whispered and tactile fremitus are absent or greatly diminished over the affected region with dullness.

Emphysema may exist in another lobe, due to a ball valve obstruction pumping air out of the affected lobe on expiration, and into the emphysematous lung on inspiration. Compensatory emphysema usually is present on the contralateral side.

In the compression type of atelectasis when the area is large, dullness is present or dull tympany. Bronchial breathing is present with increased voice, whisper, and tactile fremitus. In both types rales are usually absent until the lung starts to recover and expands.

These physical signs may be somewhat confusing, but, if the area of atelectasis is large enough, the conclusive sign is that the heart and mediastinum in unilateral cases are displaced towards the affected area. Careful inspection of the chest may reveal a retraction of the chest wall on the affected side, hence an unequal expansion of the two sides of the chest wall on deep inspiration in unilateral cases, but when small areas of atelectasis exist, this sign may be absent.

When massive collapse occurs as a complication of pulmonary abscess or pneumonia, there are usually no other symptoms than already exist, or that one might expect to exist with these conditions, except that dyspnea is greatly increased.

Very often examination of cases with massive collapse, early in the disturbance, shows signs found in obstructive atelectasis, while later in the course the signs change to that of a compression atelectasis, with the breathing becoming almost amphoric. The process may be reversed, and, as Dr. Lord suggests, this complex may be due to the fact that the bronchi are at one time closed and at another open.

Differential diagnosis

The physical signs of atelectasis are so similar to many other chest conditions, that an x-ray should be taken to establish diagnosis. As Dr. Allen has already shown us there is a marked increase of density over the affected area, the intercostal spaces are narrowed on the affected side, the heart and mediastinum are displaced toward the involved lung, and the diaphragm is elevated. Of course, if the case is a bi-lateral one, only the elevation of the diaphragm and the density over the affected area will be present.

Pleural effusion may often give the same signs as massive collapse, but a needle into the chest should quickly differentiate this condition. We have seen massive collapse and pleural fluid co-existing, in which both conditions must be treated.

Pulmonary embolisms are often confused with atelectasis, as the signs and symptoms are almost identical, and several days must pass until bloody sputum appears, or an x-ray is taken, in order to separate these two conditions.

Atelectasis and pneumonia often may be confused, but with the history of chill, the character of the sputum, the appearance of rales, and x-ray differences, one should not confuse these conditions.

We agree with some authorities that some pneumonias may start as an atelectasis, and that a number of doubtful and questionable cases of post-operative pneumonia are unrecognized cases of atelectasis. These may be cleared up and a real pneumonia prevented, if careful diagnostic methods are used, and proper treatment instituted.

Pneumothorax may be confused with massive collapse of the lung, as both have a sudden onset with pain in the chest, fever, dyspnea, rapid pulse and cyanosis. But we should have no trouble in differentiating these conditions, if we remember, in the atelectatic lung, the heart, trachea and diaphragm are pulled towards the collapsed

lung, while in pneumothorax an exactly opposite condition occurs, producing very different physical signs. X-ray easily differentiates these two conditions.

Acute heart failure may in the early course of its development be confused with an atelectatic lung, but a careful study of the history and physical signs should at once reveal the true condition.

True asthma, and obstructive atelectasis due to some foreign body, both give a wheeze, and should not be confused, if one carefully examines the chest and looks for the signs of atelectasis. Dr. Chevalier Jackson describes the asthmatoid wheeze, heard at the open mouth of the patient and rarely audible at the chest wall, in cases of almost complete obstruction of the bronchus and causing atelectasis, which can be used to differentiate from the asthmatic wheeze heard over the chest in true asthma. In these cases it would be profitable to remember Dr. Jackson's statement: "All is not asthma that wheezes, it may be anything from peanuts to cancer."

Treatment

It can be readily seen that the relief of symptoms, produced by the pulling of the mediastinal structures towards the affected area, must be the first aim of any treatment of massive collapse of the lung regardless of the type of atelectasis.

The treatment of rolling the patient back and forth on the unaffected side, after the method of Sante, can be used if the condition of the patient will permit it, but if prompt relief is not obtained, other measures must be used.

Artificial pneumothorax, which relieves the symptoms of mediastinal displacement, and often dislodges any obstructing material from the bronchi, has been successfully employed with very favorable results by Habiston and Ashbury, and is urged before the use of bronchoscopic treatment by Moorman. By this method the distressing symptoms are removed and the trachea and other mediastinal structures are restored to their normal position, so the operator will not be handicapped by abnormal conditions and less trauma will result, but we believe other measures of treatment are better.

The use of carbon dioxide, in from 5 to 10 per cent mixtures with oxygen has been adopted by various investigators and clinicians with most excellent results, and we have found it most successful in our series of cases. While we do not advocate this as an absolute procedure to replace other methods, we do believe it is by far the most successful and convenient to use if proper apparatus is at hand. It may save a patient from a distressing bronchoscopic examination and it very often gives the patient immediate relief.

Bronchoscopic treatment, however, in the obstructive type of atelectasis is often the only procedure that will quickly remove the obstruction. This can safely and quickly be done by a well-trained bronchoscopist.

The details of these methods of treatment, however, I will leave to other members of this symposium.

Conclusions

1. In cases that have no history of a chill, and have a sudden onset with dyspnea, cyanosis, rapid pulse and respiration, with fever, a white count between 15,000 and 20,000, and physical signs showing a displaced apex beat towards an area of dullness that at one time shows bronchial breathing and at another decreased breath sounds with a compensatory emphysema in the contralateral lung; and if the sputum is mucopurulent with no blood, we must think of atelectasis.

2. In cases where the patient has wheezing and cyanosis, asthma due to some protein or pollen sensitization should not at once be diagnosed, but a careful inspection of the chest should be made for signs of obstructive atelectasis.

3. The most conclusive sign in atelectasis is the shifting of the mediastinal structures towards the affected side in unilateral cases.

4. An x-ray should always be taken of the chest, to confirm the physical findings, in making a diagnosis of atelectasis.

5. When the Sante method of treatment is contraindicated or does not at once give

relief, the carbon dioxide-oxygen method of treatment should always be used; and if this does not relieve the condition, bronchoscopic treatment should be instituted.

BIBLIOGRAPHY

[1]Pasteur, W.: The Lancet, 2: 1351, 1908; ibid. 2: 1080, 1910; ibid. 1: 1329, 1911; British Journal of Surgery, 1: 587, 1914.

[2]Lord, F. L.: Diseases of the Bronchi, Lungs and Pleura. Philadelphia: Lea and Febiger, 1925.

[3]Norris, G. W., and Landis, H. R. M.: Diseases of the Chest and Principles of Physical Diagnosis. Philadelphia: W. B. Saunders and Co. 1929.

[4]Meigs, J. F.: Am. Jr. Med. Science, 23: 83, 1852.

[5]West, Charles: Lectures on the diseases of Infancy and Childhood. Philadelphia: Lee and Blanchard, 1850.

[6]Coryllos, P. N., and Birnbaum, A. L.: Arch. Surgery, 16: 501, 1928; ibid. 18: 190 (Jan.) 1929; also Bull. New York Acad. Med. 4: 384 (March) 1928; also Am. J. Roentgenol, 22: 401 (Nov.) 1929.

[7]Burnett, C. T.: Colorado Medicine, 7: 226 (July), 1930.

[8]Habliston, Charles C.: Am. J. Med. Sc. 176: 830 (Dec.) 1929.

[9]Ashbury, H. E.: Am. J. of Roentgenology and Radium Therapy, 21: 452, 1928.

[10]Moorman, J. L.: Ann. of Int. Med. 3:1024 1930.

[11]Sewall, Henry: Am. Rev. of Tuberculosis, 4: 136, 1921.

[12]Sante, L. R.: J. A. M. A., 88: 1534 (May 14) 1927; ibid. 88: 8215 (Jan. 22) 1927.

[13]Lee, W. E.: Annals of Surgery, 79: 506, 1924.

[14]Henderson, Yandell, and Haggard, H. W.: J. A. M. A., 92: 434 (Feb.) 1929.

[15]Henderson, Yandell and Coryllos, P. N.; Holmes, G. W., and Scott, W. J. M.: J. A. M. A., 93: 96 (July 13) 1929.

[16]Henderson, Yandell: J. A. M. A., 90:583 (Feb. 25) 1928; also J. A. M. A., 94: 179 (Jan. 18) 1930; also J. A. M. A., 95: 572 (Aug. 23) 1930.

[17]Jackson, Chevalier, and Lee, W. E.: Ann. Surg., 82: 364 (Sept.) 1925.

[18]Jackson, Chevalier: Am. J. Med. Sci., 156:625 (Nov.) 1918; also Am. J. Med. Sci., 165:313 (March) 1923; also J. A. M. A., 95: 639 (Aug. 30) 1930, and discussion at 81st annual session A. M. A., Detroit, June 27, 1930.

TREATMENT OF ATELECTASIS

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It has long been known that ateleetasis is a post-operative complication.

W. Pasteur, Lee, Clerf, Tucker, Coryllas, Birnbaum and scores of other writers have forcibly brought forth proof of this complieation. There is no doubt in the minds of many writers that the post-operative pneumonias, so called, are really primarily, a noninfeeted atelectatic process due to main trunk obstruetion. If the proeess is not relieved within a very reasonable length of time, infeetion results. Types 3 and 4 Pneumococcus are the predominating organisms and there is more or less fibrin in the mueus in proportion to the virulence of the offending organisms, eonsequently the mucus is more or less tenacious. Bronchial obstruction depends on two major points: (1) the more or less viscid bronehial seeretion and (2) the inability of the lungs to expel it. The second faetor will depend on the viseosity of exudate, and on the mucus defense of the lungs. Consequently the elimination of all or any one of the factors named will prevent, or eure all post-operative complieations of the lungs, non-embolic in origin.

We know that after irritation of the lungs there is inereased mueus secretion from the mucus glands of the bronehi, from 0.5 mm. in diameter and up; also there is an increased hyperemia of the mueosa and edema with a narrowing of the lumina of the bronchi. There is normally present in the mueosa of the mouth, type 4 Pneumococcus which modifies the bronchial seeretion which now becomes rieher in fibrin and more tenacious and viseid. The eonsequence is a viscid, tenaeious and inflamed mucosa and edema, and impairment of the epithelial eilia. This all lessens the cough reflex. The pain after operation, the failure to cough, the quiet and rest produeed by hypnoties and shallow respiration are all eausative faetors.

It has been the opinion of the writer for some years that there is a higher ineidence of acute respiratory infeetion in the Rocky Mountain region than in other parts of the United States.

There is no doubt in my mind that there is a higher incidence of sinus infeetion. It has been my opinion that the death rate from lobar pneumonia and broncho-pneumonia is higher in Denver than in lower altitudes. I have no figures to quote, but I am sure that investigation will prove my assertion.

It is a fact that we have found in the hospitals of Denver more post-operative atelectasis than is being found at the Mayo Clinic, or, I believe, in other parts of the country. Dr. A. O. Singelton, Professor of Surgery at the University of Texas, informed me recently that there have been only three cases found at John Sealy Hospital; the teaching hospital of some 400 beds in Galveston, Texas. It is the opinion of some of the prominent nose and throat men that sinus infection and post-operative atelectasis are frequently associated. The fact that we are finding atelectasis so frequently in the Rocky Mountain region (Denver) should make us all study the conditions that prevail here. I have found no connection in my cases of atelectasis with pulmonary tuberculosis; in fact, I have not had any case that I consider has or has had tuberculosis, so there must be something in this region that has some bearing on this condition. Is it the altitude, the long winters, the dry steam or hot air heated houses with low humidity, the low precipitation? Do we dress warmly enough? Is our type of infection more virulent or is it the sudden change of the weather conditions? I have no answer to give but just point out that I believe that there is a high incidence of atelectasis following operations in this region. It is a known fact that there is a high incidence of post-operative atelectasis following upper abdominal operations, but we have this condition following goiter operations, appendectomy, pelvic operations and many other operations regardless of the type. The type of anesthesia I do not regard as a causative factor. I do not consider anesthesia responsible for any post-operative complications.

It is possible that Yandell Henderson[1] has solved the problem, but my time is too limited to take up that question.

In treatment, prevention is most important. Posture is the first important consideration. Sante suggests change of posture, placing the patient on the unaffected side to increase drainage. The administration of carbon dioxide 10 per cent with oxygen 90 per cent after all operations is thoroughly recommended. The carbon dioxide affects the alkali carbonates and the CO2 content of the blood; hence the stimulation of deep inspiration, hyperventilation of the lung, increasing cough reflex and the dislodging of mucus plugs. The second method is the use of the oxygen tent which is fully described in the literature. It is an ingenious invention that fits well over the head and chest of the patient. The apparatus is motor driven, the oxygen is forced through ice to cool it, so as not to be so uncomfortable under the tent and it then passes through soda lime to take out the proper amount of carbon dioxide; but there is enough carbon dioxide to stimulate respiration. This form of treatment is necessary where the respiration is shallow, where there is rapid heart action or cyanosis. It supplies oxygen to relieve the overstrained heart, to properly oxygenate the blood and lower the temperature in two to four hours, thereby relieving cyanosis, rapid respiration, rapid heart action and early exhaustion. Carbon dioxide is given by the mask method in 10 per cent mixture with oxygen. Almost any gas machine can be so arranged as to give 90 per cent oxygen and 10 per cent carbon dioxide. This is given just as an anesthetic with a mask, causing deep inspiration, thereby hyperventilation of the lungs, increasing the cough reflex, dislodging mucus plugs and allowing the pent up mucus in the bronchi to escape. The treatment is given for three to ten minutes from one-half hour to several hours apart, according to the amount of involved lung. It is my practice to use these methods together, keeping the victim under the oxygen tent between treatments. Of course, if heart stimulants are necessary they are given digitalis, hypodermically or intravenously, in 1 to 3 c.c. amounts, caffein sodium benzoate 3¾ to 7½ grs. as required. Atropine, I think, is contra-indicated on account of its increasing the viscosity of the exudate. If the patients smoke, I encourage it to increase the cough reflex so as to expel the mucus more thoroughly.

In treating the pneumonitis, which I and a great many others believe a secondary invasion of a primary atelectasis, this method is carried out over a longer period of time.

The experimental work by Coryllos and Birnbaum shows that three important points are gained: hyperventilation relieves obstruction, thereby creating the apneumonic lung and re-establishing free bronchial drainage. If the above method does not clear the obstruction, bronchoscopy is advised. I have seen patients relieved in a very few minutes by bronchoscopy which will be described in detail by Dr. Carmody. Pulmonary emboli are treated symptomatically. There have been a few operated and the embolus removed, but of course this cannot be a universal method. Keeping the patient under an oxygen tent, proper rest and proper stimulants are necessary. Pulmonary abscess is best treated by posture and bronchoscopy. I do not believe from my experience that rib resection and drainage externally is advisable. If they survive the operation they are liable to have a bronchial fistula. Pneumothorax, collapsing the lung and thereby forcing the abscess to drain or collapse, has been fatal to all cases I have seen. Therefore, bronchoscopic drainage and treatment and postural drainage, I believe, offer the best methods for cure.

I am of the opinion that atelectasis pneumonitis and pulmonary abscess (inspiration types) are all preventable by the use of carbon dioxide after all abdomen, head and neck operations, especially tonsillectomy under general anesthesia.

At the present time it is negligence to have any of the chest complications (in our uncomplicated chest conditions) non-embolic in character in post-operative cases. In cases where there is chest complication, colds and so forth, Morgenroth, Levy, A. E. Wright and Baldwin, Rhoads, Waltercross and others recommend the internal use of optochin base. Careful cleansing of the mouth and mucus membrane with optochin hydrochloride 1 to 500, repeated in three to four hours, is helpful, for optochin is a very powerful and specific germicide against pneumococci.

Coryllos has well said: if the theory that post-operative bronchitis atelectasis, broncho-pneumonia and pneumonia are simply different stages of a manifestation of the same morbid condition be correct, then the treatment proposed to overcome bronchial occlusion and insure free drainage of the bronchial tree for forty-eight hours after operation (when the mucus of defence of the lung is impaired) will enable us to avoid post-operative pulmonary complications.

In cases in which these are already developed, the treatment described, beginning at the cause of the complication, the pneumoccus Group 4 bronchitis, will help us to avoid extension and hasten recovery.

REFERENCE

Henderson, Yandell: Acapnia as a Factor in Post-operative Shock, Atelectasis and Pneumonia, J. A. M. A., 95:572 (Aug., 23), 1930.

BRONCHOSCOPIC DIAGNOSIS AND TREATMENT OF MASSIVE ATELECTASIS

T. E. CARMODY, M.D.
DENVER

The interest in massive collapse of the lung practically dates from Pasteur's observations in 1908, but that interest has become much more acute, at least in this country, since 1928 with the work of Coryllos and Birnbaum.

Although the same condition had been found and noted many times in cases of bronchial obstruction by foreign bodies by Jackson, Iglauer, and the author, these did not as a rule produce such acute symptoms.

To quote from a recent article by Henderson:

The mortality from postoperative pneumonia is estimated by several independent investigators in different countries at about four deaths for each thousand major surgical operations. Atelectasis is far more frequent. In some degree it occurs in at least one case after each ten operations, or even after each five. Indeed, careful examination shows its primary stage after nearly all operations of some types. It may follow local and spinal as well as inhalation anesthesia. It is largely independent of direct irritation of the lungs by the anesthetic or of aspiration from the mouth. The term "ether pneumonia" is a relic of the time when anesthesia methods were crude. The erroneous conception indicated by this term concealed the lack of that knowledge which roentgenograms of the chest now afford. Coryllos and Birnbaum have demonstrated experimentally that postoperative pneumonia may begin with pulmonary occlusion and atelectasis; for, if pathogenic

organisms happen to be present, they find in any atelectatic part of a lung conditions favorable to their growth.

Jackson states:

Obstruction of a bronchus is one of the fundamental factors in the etiology of pulmonary disease. It is of vital importance to the patient; it is one of the fundamental things in the production of physical signs. Therefore, it logically deserves first place in the analysis of the objective bronchoscopic obervations in comparison with the physical signs elicited in the same patient practically at the same time. Of course, abnormal physical signs may be produced by pathologic changes other than bronchial obstruction; but it is abundantly proved by bronchoscopic observation that, though the obstruction may vary in degree from the slight obstruction of a few drops of secretion to total occlusion by secretions or organic disease, clear, unobstructed bronchial tubes produce none of the signs that are deemed abnormal.

Bronchoscopic treatment of massive, lobar or lobular collapse, whether of postoperative origin or of other origin, is only to be undertaken by an experienced bronchoscopist and then as an emergency measure after the simpler methods have failed or have been considered unfeasible.

However there are many cases where bronchoscopy is the method of choice.

Regarding etiology, although this subject is covered by another paper, an observation made on our cases and which has not been noted in the literature is that in all cases seen and operated, with one exception, infection of the sinuses was present and in the excepted case the sinuses were not x-rayed.

While this observation does not prove bronchial blocking* it as least proves, if we believe that upper respiratory infection is a cause of much of the pulmonary pathology, that a soil has been prepared in the destruction of the cillia of the bronchial cells, or at least in the dysfunction of the superficial layers of epithelium.

Little need be said here on the splinting of abdominal or diaphragmatic muscles as a factor, for this must be admitted:

To quote from Henderson again:

The most recent and complete demonstration of the acapinal position of the thorax is afforded by Muller, Overholt and Pendergrass. They find that after operations in the upper part of the abdomen, it is several days before the normal vital capacity returns. In roentgenograms the diaphragm is elevated toward the thorax at first 4.8 cm. on the right side and 3.5 cm. on the left above the preoperative position. There is also a narrowing of the intercostal spaces. These conditions are so common that Muller and his associates even consider them as "normal postoperative manifestations." Inhalation of carbon dioxide tends to relieve them and to increase the inflation of the lungs. Muller and his associates therefore define the continued deflation as due to 'pulmonary compression and hypoventilation." They show roentgenographically that the condition may last for many hours and in some degree even for days after operation. There could scarcely be a clearer demonstration of the acapnial position of the lungs and of the opportunity thus afforded for occlusion of some areas within them to develop. Then must follow the absorption of air, atelectasis and finally, if pathogenic organisms are present, postoperative pneumonia.

Some cases, however, are of such rapid onset as to suggest the analogy of an aspirated foreign body, and in all of my cases, with one exception, a plug could be seen in one or more bronchi and others gave the impulse of a foreign body suddenly striking the end of the suction tube. Beside this, much of the secretion aspirated is thick and gelatinous.

The symptoms in lobar or lobular collapse are not so urgent, but neither are those of collapse of the same extent when produced by an ordinary foreign body, but no one would attempt at the present time to dislodge most foreign bodies without bronchoscopic aid.

Sante says that the lung slowly recovers following bronchoscopy and many bronchoscopies are required. If this is quoted from Jackson, as he says, we must take exception, for our cases have shown remarkable recoveries in a few hours and none have required a second bronchoscopy and all have lived.

Our cases have followed general anesthetics, local and spinal, and one a back injury. The later case was the only one in which any difficulty in passing the bronchoscope was encountered.

It is not necessary to move the patient from bed and in two cases, our first and last, it was impossible to do so as the first was almost moribund and the last had a fractured leg suspended from a frame.

If there is any question regarding what is present in a bronchus, it is quite a simple procedure to pass a bronchoscope and look.

*Bronchoscopic treatment of this condition has probably been given more attention in Philadelphia than in any other locality or at least more publications have been issued from Jackson, Tucker, and Clerf either collectively or as individuals.

While this does not allow of the conclusion that the profession in other cities does not see the cases or are not interested, it appears that the interests in other cities either do not believe in bronchoscopic treatment or have less confidence in their bronchoscopists,

DISCUSSION

Leonard Freeman, Denver: Suppose we get this thing clear. There is no question about atelectasis being an important factor in postoperative pulmonary conditions, but we should understand that it is not the only factor and that it is not a primary factor. Something causes atelectasis; perhaps some nervous disturbance, perhaps some increase in bronchial secretion. Whatever it may be, our attention should be focused prophylactically upon these primary causes as well as upon the atelectasis itself.

Now, what are some of these primary causes? A good many of them have been mentioned in the discussion.

In the first place, there is the section of country that we are operating in. And right here I want to take exception to what Dr. Connor has said in casting aspersions on Colorado—in saying that here particularly we find an unusual number of postoperative pulmonary complications. He says he cannot produce statistics. He would have to produce many statistics before convincing me of his premise. I have had considerable experience in operating in Colorado for thirty-five or thirty-six years, and from this, together with what I know of operations elsewhere, I cannot accept his view. In addition, I hardly think it wise unless one is very firmly supported by statistics, to make such an assertion.

Then, there is the individual resistance of the patient, which varies immensely, and also the time of the year has a bearing upon postoperative pulmonary conditions.

Also the questions of whether there is an epidemic abroad, or not, and whether the patient himself has any preoperative pulmonary infection; or, what is equally important, but seldom considered, whether he has recently had such an infection. There are those who have had great experience who even claim we should wait for several weeks after a pulmonary infection has subsided before we undertake an operation. And there is also the question of whether there is any infectious condition in the pharynx, nose, or sinuses.

A very important thing is the character of the operation. Operations upon the extremities are nowhere near as likely to be followed by pneumonia as operations within the abdominal cavity. The danger also varies with the position in the abdominal cavity—the higher up you go, the nearer the diaphragm, the greater the likelihood of postoperative trouble.

The anesthetic has been disposed of very nicely by Dr. Carmody. He says he thinks it has very little to do with the condition in the lung. That perhaps is going a trifle too far, but it has much less effect than has formerly been supposed. There probably is no such thing as "ether pneumonia," without also taking into consideration many other things.

Then, there is the position of the patient in bed. We used to think patients should lie flat on the back after operations. We now know they should turn frequently, at least every two or three hours, to empty the bronchi, improve the circulation, etc.

Then, there is the circulation of the blood. Operations decrease the circulatory power from loss of blood, shock, lack of movement, etc., which must be considered. And the decrease in the respiratory movements also is extremely important, resulting in deficient ventilation of the lungs.

An interesting thing is the fact that irritation of the peritoneum causes a corresponding irritation in the bronchi with excessive secretion which leads to postoperative trouble. This has been worked out experimentally on dogs recently. It helps to support the nerve theory of atelectasis and emphasizes the necessity of gentleness in operating.

Also we know that operations upon the stomach particularly predispose to pneumonia, perhaps from irritation of the vagus nerves, which produces an increase in the bronchial secretions.

Then, there are emboli. We placed a great deal of stress on emboli a few years ago, which has been transferred now from emboli to atelectasis.

Then, there is the aspiration of pharyngeal secretions. Dr. Carmody has told us that this is probably a doubtful source of difficulty.

All these things as well as others we must pay attention to if we wish to lessen the number of postoperative pulmonary complications.

In conclusion I wish to mention two things used a great deal abroad, but not so much in this country. Certain large clinics use them with success, while others are less optimistic. I have employed them in the last year or two, and I think I can add my favorable testimony to that of others.

The first remedy is ether, injected intramuscularly. Equal parts of ether and olive oil are used, and 1 c.c. of this mixture is injected into the muscles, in order to ward off bronchitis and also in the treatment of a postoperative case when it arises. It is not so useful in pneumonia. It is used at the time of operation and twice a day for a couple of days following.

The second thing is the injection of the patient's own blood, a sort of "protein shock" as it were. From 20 to 40 c.c. of the patient's own blood are injected intramuscularly—taken out of a vein and injected immediately. This is used when the temperature mounts suddenly and we have reason to think that pneumonic infection of the lung is occurring, but it must be employed early to be effective. The temperature within two or three hours usually drops and the patient improves, although local conditions in the lung take a longer time to disappear.

C. E. Tennant, Denver: As a member of the Colorado State Medical Society, I wish to acknowledge a debt of gratitude to these gentlemen who have so carefully prepared the papers in this symposium. Much original matter has been presented and the data here deduced will be utilized and referred to by those who later add their contributions to this subject. I wish particularly to emphasize the work of our worthy chairman, Dr. Maurice Rees, and the Colorado General Hospital who have so generously furnished us with material assistance; also the Presbyterian Hospital, of Denver, Colorado, in affording their staff members the opportunity of making these radiographic studies original in character, and valuable for deduction.

An important fact worthy of thought is that Yandell Henderson has referred to carbonic acid as a respiratory stimulant as far back as 1912, and its use has been discussed at infrequent intervals at our meetings, yet its practical application has been neglected by us. We have diagnosed our postoperative pulmonary "crack-ups" as pneumonias, because of confusing clinical signs common to both conditions, and our autopsies prove the latter, for pneumonia is frequently the terminal lesion, or sequence, of atelectasis. Many industrial plants have been using oxygen and carbonic acid for carbonmonoxide poisoning for which it is almost a specific.

Significant is the fact, that workers employed in rooms where carbonic acid is released in the atmosphere, although developing influenza

of the coryzal type, have little or no morbidity and lose no time because of an apparent prophylaxis which carbonic acid has in keeping the pulmonary airways clear. This is quite suggestive of the therapeutic value of carbonic acid and oxygen administered at once to all cases of influenza with the slightest suggestion of pulmonary complications, and I predict with its use in the future we shall not have the high mortality or morbidity which has formerly been the toll of this dread epidemic.

My own experience with the use of a 10 per cent carbonic acid in oxygen, administered for five minutes in each hour, has worked magically in quite a considerable number of my postoperative pulmonary crises.

CASE REPORTS

ARACHNIDISM

DUVAL PREY, M.D.
DENVER

It is with the greatest pleasure that I am privileged to present the first report of a case of arachnidism occurring in Colorado.

A Mexican boy, nineteen years old, was awakened at 5 o'clock in the morning by a sharp, sticking, stinging sensation in the left subscapular region. He noticed, among the coverlets, a black spider with red markings, which he promptly caught and killed. Within fifteen minutes there followed an agonizing pain which traveled over the chest, down onto the abdomen, localizing in the hips. This pain was so severe that he had his brother bring him to Denver, where I saw him at 9 o'clock that morning.

At this time he was extremely restless; rolling and thrashing about the bed, complaining of an excruciating pain in the hips. Respiration was rapid and shallow. The pulse was 66 and slightly irregular. The blood pressure was found to be 192 systolic, and 90 diastolic. The temperature was 98° F. The face was pinched and there was a frightened and anxious expression. The pupils were equal, reacted to light and accommodation. The ocular movements were normal and the sclerae were normal. The lips were dry and parched, the tongue was furred and the throat was normal. The lungs were normal. The heart was normal except for a slight irregularity in the rate. The liver dullness was not increased and the spleen was not palpable. The abdomen was astoundingly rigid, without tenderness There was, likewise, no tenderness over the hips, although there was pain on motion. The genitalia were normal and there was no edema of the ankles. The knee jerks were exaggerated. There was no skin rash.

In the left subscapular region there were two minute red spots about two millimeters apart, surrounded by a dull, dusky red area about three centimeters in diameter. The patient had difficulty in voiding and a catheterized specimen showed a faint trace of albumin and a few hyaline casts. The white blood count was 19,000; with the polymorphonuclear leukocytes 89 per cent.

At this time morphine was prescribed, and by noon the restlessness and pain were markedly improved. During that afternoon and night, he had an occasional twinge of pain and several drenching sweats.

The following morning he was weak, wan and exhausted, and complained of a cold area across the chest just below the nipples, about a hand's breadth in width. The pulse was 56, the temperature was 97° F., and the respirations were 20. The abdominal rigidity was slightly lessened. Perspiration was marked and the urine was scanty.

For the next three days the patient made a gradual but steady recovery, with a complete disappearance of all the symptoms, and was discharged from the hospital on September 9, 1929. One week later he reported at my office complaining of a pain in the ankles, so severe that he could not rest or sleep at night. Examination was entirely normal except for the two minute red spots in the left subscapular region. The white blood cell count was 10,400; polymorphonuclears 82 per cent. The red blood cell count was 5,000,000; hemoglobin 95 per cent. The blood Wassermann was negative. The urine continued to show albumin, but there were

no easts. One week later he reported that he was entirely reeovered.

Emil Bogen has reviewed the literature most completely up to 1926, and he finds that only 150 cases of arachnidism have been reported from the United States. Two-thirds of these were from California, and the balance from the southern states; with an oceasional ease reported from sueh northern distriets as New Hampshire, Ohio, and Pennsylvania. In this series, there were ten deaths, but unfortunately no autopsy report was made.

Of the one hundred odd varieties of spiders that we have in the United States, the Laetrodeetus mactans is probably the only one responsible for the ill effects in man, although, reeently, Schamaus reports a ease of arachnidism resulting from the bite of the Loxoseeles refescens (Dufour). The Lactrodeetus maetans is a shiny, eoal black, glossy spider, variously marked with red or yellow spots on the baek, and an hour-glass spot on the abdomen. The female, who is responsible for the bites in man, is about one-half ineh in length, and is often ealled the blaek widow spider, due to the uneanny habit of eating her mate. The male is smaller than the female, and has the additional markings of four stripes along eaeh side of the abdomen. This spider builds its web in out-of the way, unused, and unfrequented places, sueh as the rafters of barns, atties, and partieularly aeross the seat of an out-door privy. And for this reason, most of the bites in man have been on the genitals or about the buttocks. The Laetrodeetus maetans is elosely allied to the Karakurt in Russia, the Malmigniatus in Spain, and the Seelio in New Zealand.

During the Middle Ages physieians were in the habit of preseribing bag-pipe music to eure the bite of the tarantula. In the city of Taranto there were a great number of tarantulas, and when an epidemie of St. Vitus Danee oeeurred they thought it to be due to the bite of the tarantula, called it "Tarantula Fever," and treated it by the most exhaustive dances. However, definite epidemies of Araehnidism have occurred both in Spain and in Southern Italy. And, even today, in South Ameriea and Northern Africa a great number of babies die eaeh year as the result of spider bites.

It is of interest to know that our Southwestern Indians were perfectly familiar with the ill effeets of the bite of the hour-glass spider, and for this reason used the venom of the Laetrodectus maetans, as well as that of the rattlesnake, to poison their arrowheads. However, Bogen, in an effort to produee Araehnidism in animals, injected maeerated suspensions of the Laetrodeetus maetans, as well as solutions of the expressed poison glands, without noticeable effect. The bite of the spider, however, produeed the symptoms of Araehnidism. So, unless the Indians extracted the venom from the spider by some method with whieh we are not familiar, the results obtained by their arrows were most likely due to the snake venom.

The symptoms of Araehnidism are a sharp, sticking, stinging sensation at the time of the bite, followed within one-half hour by an agonizing pain whieh travels by eontiguity over the body, loealizing in the hips, baek, and abdomen. The pain reaehes its aeme in two hours, and is unrelieved by opiates within six hours. It gradually subsides, leaving the patient weak and exhausted. Restlessness is marked, the patient rolling and tossing about the bed endeavoring to obtain relief from the excrueiating pain. The faee is pineheđ, the tongue is dry, and the respiration is rapid and shallow. The pulse is slow, averaging below 66, but usually regular and of good quality. The partieularly striking objeetive symptom is the board-like rigidty of the abdomen and the absenee of tenderness. The blood pressure is elevated. The knee jerks are usually inereased. Urinary retention is eommon. The leukoeyte count is inereased. In Bogen's series of fifteen eases, from the Los Angeles General Hospital, the leukoeyte eount averaged 14,761 the first day; 11,600 the seeond day; and 10,720 on the third day. The polymorphonueleears are well above 80 per eent. The urine is seanty and eontains a faint traee of albumin, and a few hyaline and granular casts.

The diminished intensity of the pain is followed by a period of profuse sweats, with a gradual improvement in all the symptoms and convaleseenee is eomplete in from three

to fourteen days. However, Baerg, in his personal experience, having suffered a spider bite in his laboratory at the University of Arkansas, states that it was almost a month before he had entirely recovered.

The treatment up to the present time has consisted of sedatives and supportive measures such as external heat, fluids and stimulants. But, Bogen, in his series of cases, has found convalescent serum to be of definite value. In South America, through the progressive inoculation of sheep, they have developed an antivenin, and since, its adoption by the Government of Brazil, no deaths have been reported. In the United States, an antivenin is now being prepared for the Lactrodectus mactans, but until the time that it is marketed, our treatment must consist of sedatives, supportive measures and convalescent serum when available.

BIBLIOGRAPHY

Bogen, Emil: Archives of Int. Med., 38:623, Nov., 1926.

Moore, Susa P.: Nation's Health, 4:749, Dec., 1922.

Schmaus, L. F.: J. A. M. A., 92:1265, April 13, 1929.

Bogen, Emil, and Berman, Phoebus: California and Western Med., 26; 339, March, 1927.

Amaral, Afranio Do: Bull. Antivenin Inst., 2; 69, Oct., 1928.

Bogen, Emil: J. A. M. A., 86; 1894, June 19, 1926.

PUBLIC HEALTH NOTES

EDITOR J. W. AMESSE, M.D.

State health department study

Dr. Sherman Williams, the president, and other members of the State Board of Health, including the secretary, Dr. S. R. McKelvey, deserve great credit for their forward-looking step in inviting the U. S. Public Health Service to make a study of the work of the department and to offer recommendations for its future development. Stock-taking is necessary at frequent intervals as well as evaluation of results secured. It is folly, too, today to think of planning a program without a factual basis on which to build. Dr. Williams and Dr. McKelvey deserve commendation from every member of the medical profession for their step, and all will look forward with interest to the report and recommendations of Dr. C. E. Waller, Surgeon of the U. S. Public Health Service, who spent six weeks in Colorado in the making of the study. Dr. Waller's outstanding work in New Mexico and his knowledge of our needs in this particular district made him a very valuable advisor. We are sure that his report will be of great help, and we bespeak for Dr. McKelvey and Dr. Williams the support of every physician in the state of Colorado in their efforts to promote and to secure a state health department that in efficiency and high standards maintained will be second to none in the country.

Toxoid taking the place of toxin anti-toxin

In its demonstrations the U. S. Public Health Service is using toxoid in immunization against diphtheria instead of toxin antitoxin. It is easier to give since only two doses are needed, a month apart, and it appears to be more effective, as evidenced by the statistics from Canada and France, as well as by those of our own public health service.

A neighboring state

A report of ten years of work since the state health agency of New Mexico was first established as a full-time office has just come to our desk. Developments during the ten years are vividly portrayed in a series of interesting charts. From $18,000 available in 1919, the various funds in the hands of the Bureau of Health have grown to $104,000. Yet, only $38,000 of this sum is derived from state appropriations. During the first five years of the period the number of cases of diphtheria fell 77 per cent, and during the same period reported cases of small-pox dropped over 75 per cent.

In 1919 there was not a full-time trained county health officer in the state of New Mexico. Now over 40 per cent of the population of the state is receiving this service.

The number of public health nurses in the state has increased from 4 to 35.

Our office has a few copies of this report which may be obtained by those interested.

Public health featured

That the social worker considers health of paramount importance was evident in the program of the Colorado Conference of So-

cial Work, which met at Colorado Springs on October 2, 3 and 4.

At every point the need for co-operation between the doctor and social worker was stressed. Co-operative methods in the treatment of disease were discussed by Dr. Maurice Rees and Miss Helen Beckley. "What a Social Worker Should Know About Public Health" and "What a Doctor Should Know About Social Work," were presented by Dr. C. E. Waller of the U. S. Public Health Service of Washington, D. C., and Miss Alice van Diest, Supervisor of the County Welfare Bureau of Colorado Springs.

"Planning the Work of a State Health Department" was the subject of Dr. Waller's address at a joint luncheon given under the auspices of the Conference and of the El Paso County Medical Society. The leadership that the medical profession should take in all public health matters was especially stressed by Dr. Waller—also the importance of the development of the local community in assuming responsibility in health matters. A state department should give advisory and supervisory service. In the field of health education, too, a state health department's work can be invaluable.

Friday's program was given over entirely to mental hygiene. Case discussions in the afternoon were especially interesting.

Dr. Bradford Murphey of Colorado Springs was the president of the conference, and Miss Alice van Diest the secretary.

New title

"Organized to study the economic aspects of the prevention and care of sickness, including the adequacy, availability and compensation of the persons and agencies concerned," is the new sub-title for the Committee on Costs of Medical Care.

Three fundamental principles have been laid down as a basis for work:

1. The personal relation between physician and patient must be preserved in any effective system of medical service.

(2) The concept of medical service of the community should include a systematic and intensive use of preventive measures in private practice and effective support of preventive measures in public health work.

(3) The medical service of a community should include the necessary facilities for adequate diagnosis and treatment.

Experts to report

After a great amount of research covering more than a year's time, 1100 experts on child health will report on November 18, in Washington, D. C., at the meeting of the White House Conference on Child Health and Protection. The reports will be the most complete classification ever prepared of the knowledge of educators and scientists in the field of child health.

LIBRARY NOTES

EDITOR J. J. WARING, M.D.

The library has received the following letter which is quoted in full:

"The Library of the Medical Society of the City and County of Denver, Dr. James J. Waring, Director.

Dear Sir:

In a will made a few days before his death, but never executed, my brother, Carroll E. Edson, left his medical books, medical pictures and portraits of doctors to the Library of the City and County of Denver.

You have already received the books in accordance with the terms of an old will which had to be probated, but my sister and I want to carry out his known wishes in every particular. Therefore, in his memory we give into your keeping the portraits of medical men which hung in his office, the portfolio of steel engravings and prints collected through many years, and his pictures relating to the Art and Science of Medicine.

We include also two sets of stereopticon slides which he had made to illustrate two talks he gave many years ago, one on Caricature, the other on Medicine in Art.

Sincerely yours,

(Signed) MARGARET EDSON."

Through the thoughtfulness of Dr. Edson and his sisters the library has thus come into possession of a number of important books and very many valuable and interesting engraved portraits of doctors, all of which will be of permanent value to the library. All of

Dr. Edson's scientific articles are being gathered together and will be in collected form at the library very shortly.

In this connection it is important to note that the library is dependent for its growth upon accession from two chief directions; first, books purchased out of the regular income of the library; second, accession by bequests of the members. If the library is to grow as rapidly as it must to keep peace with the development of medical science and with the demands of the profession in this community, it is very necessary that the library should profit by the latter method. The gift of Dr. Edson's sisters in memory of their brother is brought to the attention of the members of the Society in this column in the hope that many of the men will make similar provisions in their wills.

Mrs. Edna Labarrere, widow of that splendid young Frenchman, Dr. Louis Labarrere, who died in 1928, in Denver, at all too young an age, has very kindly given to the library a beautiful Laennec centenary medal. The library at the present time has no proper facilities for the display of interesting medals, old surgical instruments, books, etc., but it is hoped in time to have some display cases. Meanwhile it is gratifying to note that the library collection of items of this sort is increasing slowly.

BOOK REVIEWS

Hypertension and Nephritis. By Arthur M. Fishberg, M.D. Adjunct Attending Physician to Mount Sinai and Montefiore Hospitals. New York City. Illustrated with 33 engravings and 1 colored plate. Lea & Febiger, Philadelphia, 1930. Pp. 550.

Since the appearance of the classic work of Richard Bright classification of various types of kidney diseases has been an alluring task. To entirely too many physicians it still remains in the confused state of two decades past. Fishberg succeeds admirably in collecting and classifying the newer knowledge of the physiology, pathology and clinical course of the disease of the kidney in an extremely readable book of 550 pages.

In his discussion of tests of renal function he concludes that the most important procedure is the concentration and dilution test. His chapters on albuminuria and casts, edema, and uremia are unusually impressive because his conclusions seem to be based on knowledge drawn from a wide physiology of the entire organism, and not confused by that of merely renal physiology and pathology.

He maintains, quite properly, that there is no uremia without measurable impairment of renal function. Eclamptic seizures complicating nephritis and hypertension but lacking evidences of renal insufficiency he terms hypertensive encephalopathies. These are the cases that are spectacularly relieved by spinal puncture. The prognosis is far better than that of uremic convulsions.

He follows the classification of Volhard and Fahr in principle, separating very clearly nephritis, nephrosis and sclerosis. His chapter on nephrosis is unusually illuminating. In his chapter on hypertension he emphasizes the distinct difference between malignant and benign essential hypertension, the former being characterized by necrotizing arteriolar lesions, the latter being merely the result (or cause) of a sclerosis process.

The entire book is a superior work of medical literature. C. F. KEMPER.

Dietetics and Nutrition, by Maude A. Perry, B.S. St. Louis: C. V. Mosby Co. 1930. Pp. 332.

Although the author's preface indicates a much wider aim, this text book of dietetics is probably intended primarily for nurses. It is a compromise between the older dietetics which were empirical and the newer science of nutrition. Digestion, absorption, assimilation and elimination are indeed discussed but are covered in a single chapter of seven pages. However there is a certain leaven of physiology scattered through the text. Standard diet tables occupy much space: twelve pages are given to various diets for obesity. In these pages we find mention of the danger of malnutrition but not a word about acidosis. It is rather astonishing to see milk rejected on the ground that it is "too bulky." The dogma is usually of the conservative order. We are warned never to give coffee to children. For adults it is useful as it "keeps the senses alert" in morphine poisoning and "soothes and quiets the nerves" when we have taken too much alcohol! The student nurse who learns her lessons from Miss Perry will have a mind well stocked with miscellanies but will not be endowed with great discrimination.

J. ROSSLYN EARP.

Personal and Community Health, by Clair Elsmere Turner, M.A., Dr. P. H., Professor of Biology and Public Health in the Massachusetts Institute of Technology. St. Louis: C. V. Mosby Co., Third Edition, 1930. Pp. 441.

This elementary text of hygiene is too well known and too well established to need any extensive notice here. To this third edition there has been added a new chapter which deals mainly with the degenerative diseases. Several new illustrations have been introduced. At the same time the former text has been pruned so that the new edition is not noticeably larger than its predecessors. The fact that Dr. Turner's book still holds its own in a field so crowded with younger competitors is eloquent testimony to its practical value.

J. ROSSLYN EARP.

The Medical Clinics of North America. (Issued serially, one number every other month.) Volume 13, Number 5. (Chicago Number, March, 1930.) Octavo of 207 pages with 17 illustrations. Per Clinic Year, July, 1929, to May, 1930. Paper, $12.00; Cloth, $16.00 Net. Philadelphia and London: W. B. Saunders Company, 1930.

In this volume the following Chicago doctors present brief discussions on the subjects following their names: Drs. C. S. Williamson and C. L. Birch, "The Mistakes in Diagnosis as Revealed by Autopsy"; Dr. J. G. Carr, "Periarteritis Nodosa"; Drs. R. W. Keeton and E. S. Nelson, "The Vomiting Mechanism in the Early Toxemias of Pregnancy"; Drs. S. Strouse and K. M. Howell, "Brucella Abortus Infections in Man (Undulant

Fever)"; Drs. R. H. Jaffe and R. A. Lifvendahl; "Atrophic Cirrhosis of the Liver Associated with Marked Enlargement of the Spleen and a Liver-cell Carcinoma; "Bacterial Thrombo-Endocarditis in a Patient with Beginning Mycosis Fungoides"; "Parenchymatous Goiter with a Persistent Thymus and Hyperplasia of the Lymph-glands"; Dr. J. R. Gerstley, "Appendicitis in Children"; Dr. W. A. Brams, "Heart Failure"; Drs. J. Meyer and D. H. Rosenberg, "Agranulocytopenia," "Sepsis Agranulocytica"; Drs. J. Meyer and M. Parker, "Subarachnoid Hemorrhage in a Case of Purpura Hemorrhagica"; Dr. J. K. Calvin, "Uremia in Children"; Dr. I. Pilot, "Putrid Empyema as a Postoperative Complication"; Drs. I. Pilot and H. Friedman, "Paroxysmal Hemoglobinuria"; Dr. G. K. Fenn, "The Use of Digitalis in the Control of Auricular Fibrillation"; Dr. J. H. Hutton, "Three Illustrative Cases of Endocrine Disorder"; Dr. A. Arkin, "Bronchus Carcinoma"; Dr. S. A. Portis, "The Relation of Headache to Upper Abdominal Distress"; Dr. C. W. Finnerud, "Dermatologic Affections in Children." C. F. KEMPER.

Color Vision Tests. By Prof. Oscar Oblath, Lecturer on Clinical Ophthalmology of Trieste. Translated by Dr. John Marshall, Surgeon Glasgow Eye Infirmary. Paper 48 pages, and 3 colored plates. Geneva: International Labor Office (League of Nations). 1929. Published in America by World Peace Foundation, Mt. Vernon St., Boston, Mass.

To promote international standardization of color testing, data as to color tests were collected with regard to air, rail and marine services from thirteen countries of Europe, Japan and the United States; upon these data this pamphlet is based. Professor Oblath has brought out by his studies the leading points of color theories, the importance of color signals, especially in certain forms of public services and occupations. Color signals are especially considered for railways, navigation, aviation and automobile service.

Methods of testing color perception in different parts of the world are described with some detail. The Holmgren wools, isochromatic diagrams of Stilling, Nagel, Schaaff and Ishihara (with colored plates); and the anomaloscope of Nagel are described. The limitations on the usefulness of color signals are well brought out and the dangers of imperfect color perception under various atmospheric conditions and the high speeds of modern transport, are properly emphasized. This is a document that should be known to oculists, railroad surgeons and superintendents, and those who arrange for the testing of vision of school children.

The League of Nations is often mentioned in the newspapers; but perhaps its best work passes unnoticed. Its series of Reports on Industrial Hygiene, the work of its Commission on Epidemics, and its explorations as to methods of dealing with minorities, should command more attention. This pamphlet, price 50 cents, is distributed by the World Peace Foundation of Boston, Mass. World Peace is better promoted by this kind of actual co-operation than by talking of a superstate, or a world police force.

EDWARD JACKSON.

Health Essays. By Horace W. Soper, M.D. Boston: The Graham Press. 1930.

This booklet embraces the substance of several papers on health topics, prepared by the author for the Gorgas Memorial Institute, and published widely in the lay press.

Sane views on the use of alcohol and tobacco, on the management of seasonal disturbances of the alimentary tract and on the prevention of colds, together with an exposition of the more recent advances in the study of nutrition combine to make this little volume a much to be desired addition to every home library.

J. W. A.

The Medical Clinics of North America. (Issued serially, one number every other month.) Volume 13, No. 6, and Index Volume. (Mayo Clinic Number—May, 1930.) Octavo of 275 pages with 55 illustrations. Per Clinic Year, July, 1929, to May, 1930. Paper, $12.00; Cloth, $16.00 net. Philadelphia and London: W. B. Saunders Company, 1930.

The Mayo Clinic Staff reveals in this volume the finger print of group medicine. Clinical medical curiosities are, in the main, passed up in the interest of expressing various viewpoints of common medical problems.

Dr. L. G. Rowntree opens the seminar on hepatic diseases by presenting a paper on "Certain Clinical and Terminal Pictures in Hepatic Disease." In his summary he cites eight such complicating pictures. He is followed by Drs. A. M. Snell, F. R. Vanzant and E. Starr Judd on complications and sequelae of prolonged obstructive jaundice. This paper is a factual argument for early and thorough surgery in such conditions. Drs. J. F. Weir and F. M. Jordan follow with a paper on clinical consideration of some types of intrahepatic jaundice.

Drs. J. A. Bargen and H. Z. Giffen introduce the subject of colitis by presenting a case of splenomegaly complicating chronic ulcerative colitis. They leave the suggestion that the streptococci of colitis may cause as definite splenic enlargement as does septic endocarditis and think it important to determine the presence or absence of such etiology, as such spleens are removed only with harm to the patient. Drs. R. D. Mussey and G. G. Burkley report their encountered cases of pregnancy following splenectomy. They find no marked interference of pregnancy but counsel advice against it when splenomegaly is of the inherited familial types. Dr. H. M. Weber discusses the variable as well as typical x-ray findings of ulcerative colitis with points of differentiation of other bowel conditions. Dr. P. W. Brown presents a paper on inflammatory lesions of the rectum other than the common ulcerative colitis and malignancy.

A rather unusual paper is presented by Drs. D. G. Ghrist and P. W. Hench on the course and prognosis in chronic infectious arthritis with special attention to cause of relapses. The comprehensive survey is instructive but the conclusions seem as yet too vague to inspire much hope. The mere fact that all theories and methods are reviewed with impartiality is eloquent argument against wide application of any one therapeutic procedure. Drs. A. C. Nickel and L. G. Stuhler emphasize the prostate as a focus of infectious arthritis. They see real virtue in autogenous vaccines in such conditions. Dr. A. W. Adson reports further results of sympathetic ganglionectomy and ramisectomy in chronic infectious arthritis.

Other papers of interest are injuries of the spinal column and cord by Drs. H. W. Woltman and J. R. Learmonth; respiratory syndrome and epidemic encephalitis by Dr. H. L. Parker; the association of angina pectoris with exophthalmic goiter by Drs. S. F. Haines and E. J. Kepler.

C. F. KEMPER.

(Continued on Page LIV, Adv. Section)

Secretarial Notes and Comment

Edited by Harvey T. Sethman, Executive Secretary

ELECTION DAY, NOVEMBER 4

LEGISLATIVE problems directly concerning the Colorado State Medical Society are bound to present themselves in January when the new general assembly convenes. Problems will arise needing strong defense if medical practice is not to be further injured. The Society hopes to take the offensive on many existing problems.

Some of these situations will arise suddenly, overnight. If organized medicine is to present its case to the Legislature effectively, organized medicine must be prepared in advance.

It goes without question that the best preparation organized medicine can have for a legislative program is a favorable legislature, a legislature including the greatest possible number of persons kindly disposed toward scientific medicine, containing the fewest possible number of persons pledged to the false doctrines of quackery, cultisms, antivivisection and the other fads.

If every member of the Colorado State Medical Society would go out of his way to obtain votes for legislative candidates known to favor scientific medicine, the cause of scientific medicine and the advancement of public health would have clear sailing in the next Legislature.

The way has been pointed out to every member through bulletins issued by the Committee on Public Policy, acting co-operatively with the Colorado State Dental Association's legislative committee. These bulletins were prepared with all possible care and with utter disregard for partisan feeling or any consideration other than the protection of scientific medicine and the public health.

That much the committee and the Executive Office could do. The remainder of the work is put squarely up to the members of the Society. Nothing the committee and the Executive Office can do will affect the results one whit if members carelessly throw bulletins into wastepaper baskets. Individual effort by hundreds of members, by all members, if possible, is needed if the next legislature is to be composed of men willing to give proper consideration to scientific medical legislation.

True, this is a new departure in activities of the Colorado State Medical Society. It is nevertheless necessary, as actions of past legislatures have all too plainly shown.

It is time for doctors of medicine who have the best interests of their profession, their patients, and the public health at heart to forget petty differences, forget partisan politics at least so far as the state legislature is concerned, outgrow squeamish hesitancy at political activity. Elect the men from each county who have the right medical attitude. It can be done.

LIABILITY INSURANCE IS NOW CHEAPER

PREMIUMS on liability insurance now will be lower than ever before for those members of the Colorado State Medical Society in the smaller communities.

Up to this time physicians in the sparsely settled districts were unable to form group policies and thus obtain the low rates. Now this can be done.

The reduced rate is effected through a resolution of the House of Delegates at the Pueblo meeting. A master policy of physicians' liability insurance for the entire State Society with the Aetna Life Insurance Company was approved, and authority was given the Board of Trustees to establish similar master policies with other companies when needed.

Several of the larger constituent societies—Denver, Boulder, El Paso, Pueblo, and others—already have and have had for years their individual county society master policies with the Aetna Company and thus already have the advantage of the group policy rates. Under insurance company rules such policies cannot be issued to small county societies unless there first is the foundation of a master policy for the entire state.

Thus, with the new system, this foundation has been laid. The State Society now holds such a master policy, with the Executive Secretary as trustee. The existing county society policies automatically become units of this State Society master policy. Additional units of this policy now can be established for even the smallest county society. If no more than two or three physicians in any one county society wish to take advantage of the lower premiums, they can do so.

The basic premium rate under this new Aetna policy is $12.50 per year for the $5,000—$15,000 coverage, as against $15.00 per year before the master policy was established. There is a proportionate reduction in the premium for larger policies. Thus the isolated physician in country practice, belonging to a county society with only a handful of members, may have as low a premium rate as the Denver, Colorado Springs, or Boulder doctor.

The Executive Office believes that a vote of

thanks is due the House of Delegates from the small constituent societies for such an outstanding service to members in small communities.

Probably by the time members read this, the Board of Trustees will have approved a master policy for the State Society with such additional reliable insurance companies as operate a physicians' liability department in our state, for the benefit of those members who carry their insurance with a company other than the Aetna.

OUR NEW COMMITTEES

STANDING and special committees for the 1930-1931 term are now fully organized. Their names will be found elsewhere in this issue of Colorado Medicine.

Ninety per cent of the work of the Society is done either directly or indirectly through its committees. But the most active committeemen cannot show constructive results for the year if members at large, and more particularly county society officers, fail to respond to calls for assistance.

The last Annual Session developed complaint from several committees that urgent letters to county officers and to members went without answer, even without acknowledgment. These occasions were not rare exceptions; they were very frequent. Committees were discouraged, and their interest in their work consequently lagged.

So far as the State Medical Society is concerned, "New Year's Resolutions" should be made long before January 1. Let every member now resolve that no query from a committee or a Society officer shall go unanswered twenty-four hours. Accomplishments of organized medicine in Colorado will progress if the resolution is kept.

COMMITTEE ON PUBLICATION

The Committee on Publication held its first meeting for the new year on October 11 at the Shirley-Savoy Hotel, Denver. Drs. George A. Moleen, William H. Crisp and C. F. Kemper were present together with Dr. C. S. Bluemel, retiring member and former chairman, Dr. J. R. Earp, Scientific Editor, and Mr. Harvey T. Sethman, Managing Editor.

Dr. Moleen, senior member, was elected chairman for the ensuing year.

The Managing Editor was authorized to notify the Montana State Medical Society of a resolution of the House of Delegates authorizing the committee to invite the Montana Society to designate Colorado Medicine as its official journal, and to ascertain the attitude of the Montana Society toward the invitation.

The extension of "Editorial Notes and Comment" into the advertising section of Colorado Medicine, replacing "Tuning In," was approved. The placing of book reviews in the advertising section instead of the Scientific section was also approved. The listing of officers, committees, and constituent societies' secretaries in the advertising section was approved with the provision that this listing be carried in the scientific section in each December issue together with the transactions of the House of Delegates.

Publication of the warning "Registered, United States Patent Office" under the title of the Journal was approved, but referred to the editors insofar as position of warning is concerned.

The Managing Editor was empowered to make such changes in advertising rates as he and the Co-operative Medical Advertising Bureau of the American Medical Association shall mutually agree upon.

The Managing Editor was authorized to charge against the Publication Fund such of his traveling expense as is incurred in the solicitation of advertising.

It was ordered that a system of postcard confirmation of reprint orders to authors be instituted.

The Scientific Editor was authorized to institute a series of scientific articles on the early diagnosis of diseases.

The Scientific Editor was authorized to invite the Colorado Mental Hygiene Society to cooperate in the preparation of a special number of Colorado Medicine.

The occasional employing of additional stenographic help for the Scientific Editor was authorized.

MEDICAL SOCIETIES

This department of Colorado Medicine is set aside for reports of recent meetings, announcements of future meetings and accounts of other important activities of the county and district societies, composing the Colorado State Medical society. Every meeting of every local society should be reported. If your society is not represented, see that your secretary reports the next one, or that some other member is appointed to the task. Other societies want to know what your society is doing.

Boulder County Medical Society

The October meeting of the Boulder County Medical Society was devoted primarily to case reports. Dr. Snair presented "Second Fracture of Bones of the Forearm;" Dr. Gilbert presented "Carcinoma of the Cardia;" Dr. Spencer presented "Glaucoma;" and Dr. W. K. Reed presented "Ruptured Liver."

Dr. Bixler, senior delegate, presented a report on the proceedings of the Annual Session of the State Society at Pueblo, and the program was closed with an address on 'Confinements in the Home," by Dr. Carbon Gillaspie.

A dinner at the Boulderado Hotel, Boulder, preceded the meeting.

MARGARET L. JOHNSON, Secretary.

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El Paso County Medical Society

Drs. L. H. McKinnie and W. P. McCrossin, Jr., were the principal essayists before the October meeting of the El Paso County Medical Society, held at the Colorado Springs Day Nursery October 8. Dr. McKinnie delivered a paper on "Clinical Indications for Thoracoplasty," and Dr. McCrossin addressed the Society on "Clinical Indication for Open Operation on Empyema." Following the papers a number of clinical cases were presented.

CARL S. GYDESEN, Acting Secretary.

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Huerfano County Medical Society

The Huerfano County Medical Society held its first autumn meeting October 15 at the Walsenburg Community Church. A dinner, at which Drs.

S. J. and J. M. Lamme were hosts, preceded the meeting.

The scientific program was featured by presentation of several moving picture reels demonstrating the indications for surgery in the treatment of peptic ulcers, and demonstrating simple gastroenterostomy and subtotal gastrectomy. The films were shown by Dr. S. J. Lamme and were discussed by Dr. Leo W. Bortree of Colorado Springs. Members of the Walsenburg dental profession were special guests at the meeting and discussion of the films brought out the need of co-operation between the two professions in seeking foci of infection. Mr. Harvey T. Sethman, Executive Secretary of the Colorado State Medical Society, also addressed the meeting, stressing new activities of the Executive Office in the establishment of medical defense and group policies of liability insurance.

JAMES M. LAMME, Secretary.

* * *

Larimer County Medical Society

The October meeting of the Larimer County Medical Society was held at the Northern Hotel, Fort Collins, Oct. 1. A dinner preceded the meeting. At the business session a request was read from the Auxiliary asking that an advisory committee be appointed from the Medical Society. Upon motion the president appointed Drs. Kickland, Cram, and Stewart.

After the business session a paper on "Physical Examinations for Aviators" was given by Dr. M. J. Stewart of Loveland, who is a reserve Flight Surgeon for the U. S. Army. In his talk he explained the different tests and their objects in a most interesting and instructive manner. The paper was discussed by Drs. William Gasser, Hardesty, and Haughy.

Dr. J. A. Matlack of Longmont read a paper on "Publicity for the Physician," explaining why the ethics of the American Medical Association, State, and local Medical Societies prohibit advertising and advocate group advertising in the form of health programs, periodic health examinations, etc., through which the public may be advised as to who is efficient in the different specialties. Many interesting lights on the subject were brought out in the discussion led by Mr. Oscar Seyster of the Fort Collins "Express Courier." Drs. Kickland, McHugh ,Taylor and Little followed and the discussion was closed by Mr. Seyster and Dr. Matlack. A vote of thanks was given Dr. Matlack for his paper. A motion was passed instructing the president to appoint a committee to investigate and report on publicity at the next meeting. It was announced that the committee would be appointed within a few days.

The secretary announced that the secretary of the Denver County Society had requested the names of doctors and the titles of papers they would be willing to deliver before the Denver Society.

"A Demonstration of Hypnotism" will be the principal presentation at the November meeting of the Larimer County Medical Society, to be held at the Northern Hotel, Fort Collins, at 6:30 p. m., Nov. 5. A dinner will precede the meeting. Dr. Richard Bourne will give the demonstration and discussion will be opened by Drs. Franklin G. Ebaugh and George Johnson of the Colorado Psychopathic Hospital.

LOWELL LITTLE, Secretary.

Pueblo County Medical Society

Denver members provided the program for the meeting of the Pueblo County Medical Society, October 21, held in the Congress Hotel. The meeting was preceded by dinner. Dr. William Senger was elected chairman of the meeting in the absence of the President.

Dr. Edward Delehanty, President-elect of the Colorado State Medical Society, opened the program with an address on "The Importance of the County Society in Organized Medicine." Mr. Harvey T. Sethman, Executive Secretary of the Colorado State Medical Society, followed with a talk on "Medical Defense and Liability Insurance," activities newly entered by the State Society. Dr. C. F. Kemper, Denver, delivered the scientific address of the evening entitled "Precision in the Treatment of Diseases of the Endocrine Glands."

Three new members were elected to the Society. A resolution was adopted calling upon the voters of Pueblo County to elect a licensed physician as coroner of the county in preference to a layman, and it was directed that the resolution be published in the local newspapers.

GEORGE A. UNFUG, Secretary.

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San Luis Valley Medical Society

The October meeting of the San Luis Valley Medical Society was held October 11 at the Grand Cafe in Alamosa.

The program arranged by Drs. C. A. Davlin and J. R. Hurley consisted of an interesting talk by Dr. Edward Delehanty, president-elect of the Colorado State Medical Society, on "What Is Expected of Local Societies," and a lecture by Dr. Franklin G. Ebaugh on "Mental Examination of the Child."

Following these excellent talks Dr. Davlin appointed Drs. Shippey, Dwyer, Hurley, Gjellum and McKibben to investigate the possibilities of organizing a mental hygiene clinic in the San Luis Valley.

The next meeting of the Society will be held in Alamosa in the week of Nov. 7 to 15. Dr. Gjellum will have charge of the program.

SIDNEY ANDERSON, Secretary.

Obituary

Dr. Arnold S. Taussig

In the death of Dr. Taussig the medical profession has sustained an irreparable loss, for he was the embodiment of service in every cause which tended to alleviate human suffering and distress or improve the lot of his colleagues. To those who had been fortunate to be within the sphere of his interests and frendship, his passing has left a lasting void, for he possessed a rare gift to inspire his associates to better efforts and pave for them the way, by example, to a better and nobler life.

Born in St. Louis on January 20, 1870, he came with his parents at the age of eleven to Denver, where he obtained his preliminary education, graduating from high school at the head of his class in 1889. The rich heritage of a distinguished Austrian family manifested itself in the early formative period of his life by his great love of music, art and literature. His reverence for and devotion to science caused him to take up the study of medicine which he completed at the Denver and Gross Medical College in 1891. Craving for more knowledge, he took post-graduate

courses at the Washington University of St. Louis and at the University of Berlin, finally returning to Denver in 1894 to engage in private practice. During his early medical career he devoted himself to dermatology and pediatrics, but he soon realized that his greatest field of usefulness was in internal medicine in which he gained renown for his diagnostic ability and infallible judgment.

Few men toiled more unremittingly in medical practice than Taussig, and none could have given more of himself to his patients than he. Keenly sympathetic, though at no time compromising, he would immediately gain not only the confidence but the devotion of his patients. By his tactfulness and gentle guidance, he was able to penetrate into the hidden recesses of the despairing souls of his patients, and imbue them with hope and courage. There are hundreds, particularly tuberculous and cardiac patients, who trace their improvement or recovery not alone to his versatility in the treatment of disease, but to his rare personality which radiated love and understanding in the sick room.

His catholicity of interests stamped him as a man of culture. He knew how to utilize his leisure profitably. An ardent lover of nature, he enjoyed the outdoor life and its various sports. One of his many intellectual hobbies was chess, but medicine, which he loved most and through it the welfare of humanity, was his most absorbing interest. Active in medical circles, at one time President of the County Medical Society, the guiding spirit of the local tuberculosis societies and the recently organized Child Research Foundation, he was not an office seeker. He shunned the limelight of publicity. Many of his public benefactions were anonymous. His self-effacement was at times embarrassing to organizations with which he was affiliated. His aim was to work and encourage others to equal effort.

One of his outstanding achievements was his service for nearly twenty years to the Sanatorium of the Jewish Consumptives' Relief Society. As medical consultant, he gave freely of his time and skill to thousands of unfortunates. He succored their bodies as well as their souls. His frequent conferences with the superintendents and resident physicians stimulated them to undertake various clinical investigations and, above all, to individualize their patients, aye, to love their patients. He never gave orders, but his kindly suggestions were tantamount to commands. As Chairman of the Medical Advisory Board since 1922, he shaped the medical policies of that sanatorium, which contributed greatly toward the success and reflected credit upon its medical personnel. All this he did without domineering. It was a burden for him to speak at any of the public functions or deliver an annual report. He was modest to a fault.

It is this human and humane side of Taussig that all those who knew him intimately will cherish as long as life lasts. There is not one of them but feels that close relationship with Taussig made him a better man and enabled him to have a better appreciation of the purposes of life. His untimely and sudden death on October 11, 1930, is a severe blow to his family, his friends and associates, the medical profession and the public health movement of Colorado. His deep and generous personality is still too vivid to permit a proper appraisal of his value to the community. This task must remain for the future historian who surely will accord Dr. Arnold Stephen Taussig a prominent place on the roster of noble physicians and humanitarians.

I. D. B.

Dr. Wallace A. E. De Beque

Dr. W. A. E. De Beque, pioneer physician of the Colorado town bearing his name, died at his home September 10, 1930. Dr. De Beque was eighty-nine years old. He was born July 18, 1841, in Woodstock, N. B. He received his early education in New England, and was graduated in 1882 from Denver College of Medicine. He served in the Union Army throughout the Civil War, and at the close of the war moved to the then territory of Colorado, settling at Fairplay in 1868. In 1883 he moved his home and practice to Grand Junction, and after a year in that city moved to the village that was later named for him.

Dr. De Beque for many years was active in medical society work, and in civic and fraternal affairs.

H. T. S.

Dr. Robert S. Burket

Dr. Robert S. Burket died on October 19, at the age of forty. He graduated from the University of Colorado in 1913 and served an internship at St. Joseph's Hospital in Denver. For many years Dr. Burket has been partially or completely incapacitated by pulmonary tuberculosis of which disease he died. He was honest and earnest in practice but too frail to satisfy his ambition.

C. S. E.

Dr. Matt R. Root

Dr. Matt R. Root died in Denver on September 20, at the age of sixty-six. He graduated from the University of Colorado in 1897, and soon enlisted as a medical officer in the Spanish-American war. He was chief surgeon for the "Moffat Road." He was an able and conscientious practitioner. His long activity among his fellows in Denver was brought to a sudden close in the night of September 20, after a day of work and hope.

C. S. E.

Dr. Alexander A. Cunningham

Dr. Alexander A. Cunningham of Denver died on October 1, aged seventy-three. He graduated from Miami Medical College, Cincinnati, in 1880. He came to Colorado in 1894 and located on South Broadway. There with an office adjoining his home he practiced for thirty-three years. He enjoyed the confidence and patronage of the people in his neighborhood to the time of failing health which shortly preceded his death.

C. S. E.

WOMAN'S AUXILIARY

PRESIDENT'S ADDRESS*

IN the name of the Officers of the Auxiliary to the Colorado State Medical Society, we most cordially greet you and sincerely hope that you will feel happy in seeing old friends and making new acquaintances while here. I will try and make my part brief, not giving a detailed report, as we shall hear from the officers and chairmen of

*Presented at the Annual Meeting, Woman's Auxiliary, Pueblo, Sept. 9-11, 1930.

the various committees of the work that has been done in the state this year.

I have written thirty-eight letters to national officers, county, presidents and chairmen. In May, a three-page typewritten State Report was sent to the National Headquarters, giving results of questionnaires sent to county presidents. I wish to state here, that I deeply appreciate the co-operation of the officers, county presidents and committee chairmen, also the fine spirit of Mrs. Rich, Pueblo County Auxiliary president, and her chairman.

The State Auxiliary is steadily growing and according to the treasurer's report this year we have grown from 245 to 351 members. When one realizes that we are just eight years old, it is very encouraging. I can really visualize a wonderful future for auxiliary work here in Colorado.

Speakers from leading women's clubs have talked on the power and value of organization among women and the benefits derived from numbers. The Auxiliary will continue growing and before long, every doctor's wife will feel it an honor to make the Auxiliary one of her first interests.

As an adjective, the word "auxiliary" means: Helping, aiding, assisting and as a noun, it is a helper, assistant, a confederate. If we as an Auxiliary, will be patient, willing to listen and learn, not to be too eager to do big things and we are ready, we shall in a few years be an indispensable asset to the profession which we all hold so near and dear.

We can only help if we have knowledge and experience and numbers.

Let us quote once again from Article II of the By-laws of the W. A. A. M. A., which sets forth our objectives:

"1. Through its members to extend the aims of the Medical Profession to all organizations which look to the advancement of Health and Education.

"2. To assist in the entertainment of all A. M. A. Conventions.

"3. To promote acquaintance among physician's families, that fellowship may increase.

"4. To do such work as may be approved from time to time by the A. M. A."

We must have a definite object—not so many that we neglect them all, but rather concentrate on two or three. An outstanding feature of importance is that of promoting the good-will and fellowship of our members. Let us consider that as our first object.

We extend our hand to every physician's wife, recognizing in her one who has the joys, sorrows and problems similar to our own and consequently we bring to each other a sympathetic understanding. When we know one another better and are ever conscious of that common tie and mutual friendship, it will unite us in a service of humanity as a goal, a plan which the National Auxiliary has so thoroughly outlined for us.

As our second purpose, we are urged to take an active and intelligent part in all health activities of our respective communities. By educating ourselves and the general public, the Auxiliary could render the greatest service to the medical profession in its effort to improve the good health of the people. Lady Astor said, "I do not say that the women will change the world, but, I do say, they can if they want to." We can do much in molding public sentiment through the medium of health talks by the leading and authoritative men of the profession. The Women's Auxiliary through its individual members interested in the various woman's clubs, can help promote further cooperation and understanding of medical ideals and of the physician's altruistic efforts to eradicate disease—thus adding happiness and prosperity to all. We are urged to continue our efforts to place Hygeia in every home, in the schools and libraries. It is a leading magazine, published by the American Medical Association. We should suggest Hygeia subscriptions as Christmas gifts, also gifts to expectant mothers. Also we are urged to secure, if possible, moving pictures to illustrate the importance of periodic health examinations by the family physician. Each member of the household, servants included, should be examined.

An important work therefore, for members of this Auxiliary, should be self-education through reading and studying programs. The first year or so of every auxiliary's existence could profitably be devoted to the education of its own members. In reading medical journals, one finds some of the editorials and correspondence of great interest to those of us (and that includes us all) interested in present medical conditions and future anticipations.

The functions of this organization are, as we have said, to assist the medical association in carrying out its purposes—not to take them over. The greetings of outstanding medical men from all over the country to the Auxiliary, are interesting and enthusiastic. In quoting the Mayo Brothers: "The home life of the physician's wife is necessarily one of sacrifice in order that the physician may answer the demands of his calling. It is a source of pride to every member of the medical profession that in the Woman's Auxiliary of the A. M. A., we have such splendid evidence of woman's loyalty to the cause of humanity."

We rather enjoy hearing about ourselves as women. Even Confucius wrote so many years ago, "Woman is the Masterpiece." Lambertine, a famous physician of southern Europe, centuries ago wrote, "There is a woman at the beginning of all things." Then again, Dr. Shurly of Detroit, quoted to the Auxiliary: "They talk about a woman's sphere as though it had a limit. There is not a place on earth, or in heaven; there is not a task to mankind given; there is not a blessing, or a woe; there is not a whispered 'yes' or 'no'; there is not a life, there is not a birth, that has a feather's weight of worth, without a woman in it."

Now, if these things are true, just think of what might be expected of us and what pleasure we could have in doing. Therefore, as a State Woman's Auxiliary, let us carry on and develop the splendid program suggested and outlined by our National Advisory Council.

MRS. F. M. HELLER,

Philanthropic Committee

A matter of interest to members of The State Auxiliary will be the Philanthropic Committees' report regarding distribution of small gifts to several of the State Institutions, as follows:

Colorado State Hospital, Pueblo; card tables for use of the women patients.

State Home and Training School for Mental Defectives, Ridge; twenty pairs of Indian clubs.

The Board of Managers had also suggested records to help in the exercise period work. These, however, were generously donated by the D. J. Phillips Music Company, Pueblo, making it possible to supply both to this institution.

The State Home and Training School for Mental Defectives at Grand Junction was supplied an accordion, the Board recommending this instrument for the use of a talented sixteen-year-old boy.

Eighteen six months' subscriptions to "Hygeia," are to be given as prizes to rural schools in the Christmas Seal contest.

The institutions had been consulted about their needs before the gifts were decided upon to make sure of sending the right thing.

Prompt and appreciative acknowledgment of these gifts has been received.

MRS. GEORGE W. MIEL,
Publicity Chairman.

Denver County

The next meeting of the Denver Medical Society Auxiliary will be held at the Denver General Nurses' Home, 2150 West Eighth avenue, Monday, November 17, at 2:30 p. m. After the business meeting, tea will be served.

San Juan Basin

The San Juan unit of the Womans' Auxiliary of the Colorado State Medical Society has had a very successful year. We have a paid-up membership numbering fifteen and usually have ten to twelve in attendance at each meeting. We think this a splendid record, when it is remembered that only seven of our number reside in Durango, and the other eight are widely scattered over the district.

Last January one of our members drove sixty-five miles to attend our meeting and two others travelled more than fifty miles.

Our meetings are held quarterly on the second Saturday of January, April, July and October, in the evening at the same time as the Medical Society. Our meetings are held at the homes of various members, and are preceded by dinner served by the hostess.

Once a year we have dinner with the members of the Medical Society. In July the Medical Society and the Woman's Auxiliary entertained the local dentists and their wives at dinner.

So far our activities as an organization have been largely social, but we assist individually with the Annual Seal Sale, Red Cross Roll Call, monthly health clinics, and any other public health work as opportunity presents itself.

We all enjoy the meetings very much and the men say that attendance at the meetings of the Medical Society has been greatly stimulated since the organization of the Auxiliary.

The San Juan Basin Medical Auxiliary enjoyed a delightful meeting in Cortez, Colo., on the evening of September 27, 1930, as the guests of Mrs. E. E. Johnson and Mrs. R. S. Calkins. Members of the Auxiliary and of the Medical Society were entertained at dinner together, after which separate business meetings were held by the two organizations.

At the meeting of the Auxiliary, the members discussed various activities for the winter months.

RAE S. DARLING, Secretary.

COLORADO NEWS NOTES

BOULDER—Dr. and Mrs. Frank Spencer attended the American Academy of Ophthalmology and Otolaryngology, Chicago, October 27 to 31.

CANON CITY—Dr. Archie Bee sailed for Europe, September 16, to spend three months in Vienna and London in post-graduate work.

COLORADO SPRINGS—Will Howard Swan has announced his retirement from practice, effective October 15. Dr. Swan is a past president of the Colorado State Medical Society and of the El Paso County Medical Society.

DELTA—Dr. A. C. McClanahan, who spent the summer in Alaska, gave a talk on his experiences before the Rotary Club October 8.

DENVER—Dr. F. J. Ritterspach has moved his home and practice from Brighton to Denver.

DENVER—Dr. and Mrs. Arthur J. Markley are home after three months touring abroad.

DENVER—Dr. and Mrs. Charles A. Bundsen returned early in October from an extended trip in Europe.

DENVER—Dr. and Mrs. H. I. Barnard are visiting in the East.

DENVER—Dr. Sherman G. Bonney has announced his retirement from practice, and his resignation from the Medical Society of the City and County of Denver.

DENVER—The International Association of Oral and Plastic Surgeons met in Denver October 2. Dr. T. E. Carmody was host at a dinner given the visiting surgeons at the Denver Club.

GLENWOOD SPRINGS—Dr. R. B. Porter is convalescing from an illness which has kept him from his practice for several weeks.

SALIDA—Dr. and Mrs. F. N. Cochems entertained Dr. and Mrs. William J. Mayo and Dr. and Mrs. Donald C. Balfour of Rochester, Minn., on September 26.

SILVERTON—Dr. A. E. Smith has established his practice here, moving from Palisade.

STERLING—Dr. E. P. Hummel was elected president and Dr. E. A. Elliff secretary of the Sterling Hospital staff at its annual meeting held October 8. The hospital board entertained the members of the staff and their wives at a turkey dinner.

YUMA—Dr. C. J. Bennett has established his practice here after three years at Oak Creek.

UNITED STATES CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission announces the following-named open competitive examinations:

Senior medical technician and medical technician in bacteriology.

Senior medical technician and medical technichian in roentgenology.

Applications for senior medical technicians and medical technicians in bacteriology or roentgenology must be on file with the U. S. Civil Service Commission at Washington, D. C., not later than November 5, 1930.

The entrance salary for senior medical technician is $2,000 a year; and for medical technician $1,620 a year.

These examinations are to fill vacancies in positions of laboratorian and assistant laboratorian in the United States Veterans' Bureau.

Competitors will not be required to report for examination at any place, but will be rated on their education and training, and on their experience.

Certain specified education and experience is required.

Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or from the Secretary of the United States Civil Service Board of Examiners at the postoffice or customhouse in any city.

WYOMING SECTION

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EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT

STATE ROAD BONDS AND THE WYOMING DOCTORS

The citizens of Wyoming will vote on November 4 on the question of issuance of $2,800,000.00 road bonds by the State of Wyoming.

These bonds are issued with the idea of completing the main trunk lines as outlined by the Wyoming State Highway Department and the use of $700,000.00 of this bond issue by the several counties of the entire state on feeder or farmer roads. Each county will, however, be called upon to match by taxation the amount received from the state.

These state bonds are to be paid for by the citizens of Wyoming by payment for automobile licenses.

In other words every cent is paid by Wyoming citizens and not one cent by the tourists who in thousands use our roads.

Our governor in his campaign speeches assures us that these bonds and the funds furnished by the national government will complete our present plans for state highways. Under either plan we shall receive as additional funds from the United States Government about $65.00 for every $35.00 we put up. From other sources we learn that it will require millions more than this to complete the roads so far designated to say nothing of other roads that should be state roads. If this is true it is a serious matter. Our state constitution limits our bonded indebtedness and a bond issue of $2,800,000.00 carries us up to our limit.

If these bonds are issued we cannot issue any more until these or previous issues are paid off. Is it wise to do this?

Would a prudent farmer, stockman or business man completely exhaust his credit? What if some emergency should arise such as an earthquake? How would the state meet such a crisis with its bonding power gone?

Surely this would be poor business. At present our patients do not all live on state highways. A very large percentage live on unimproved, often ungraded, dirt roads. These roads are unpassable many months of the year and yet we must reach our patients.

It is self evident that a few main highways will not meet our needs. We need good roads everywhere. Is there any way to obtain these? Yes, there is a plan and one that will not bankrupt the counties or the state government. What is it?

At the recent special session of the state legislature Leslie Miller presented such a plan. It was not considered by the legislature. There were certain political reasons why it was sidetracked.

These reasons were foolish and the citizens of Wyoming know that some plan must be worked out to meet their needs for roads that can be used the year around.

The Miller plan calls for the voting "No" on our State Road Bond.

The state will still be able to vote bonds to meet any emergency just as it can today.

It is proposed to issue in the next four years $10,000,000.00 worth of state gas tax anticipation warrants. These warrants will be issued as needed and repaid over a period of ten years. This plan is constitutional and has been put in use in New Mexico, South Carolina, Tennessee, and Idaho, and in all of these states has been found very satisfactory.

Five millions will be used by the State Highway Department to complete the main state highways and five millions given to the

different counties for feeder or farmer graded drained roads and surfaced highways.

The counties will not have to raise any additional taxes to match the amounts received from the state, as is required by the proposed State Road Bond. The present four cents a gallon gasoline tax will be sufficient to pay off these bonds and allow $1,000,000.00 a year for maintainance of the state highways. The best part of this program is that the people of Wyoming will not have to foot the entire bill, but the tourists and outside people will pay for 25 to 33 per cent of the bill. This is fair and just. If they use the improved roads why should they not pay part of the expense? That good roads will increase the tourist travel is self evident and as the tourist travel increases additional gasoline with its four cents state tax will be sold.

Smoke screens are being thrown out by certain politicians to try to cloud the issue such as, "not constitutional," "we cannot get federal aid by this plan," and other foolish and irrelevant objections.

The United States Government does not care where we get the money so long as the state matches the funds offered by the federal government. At present there are several millions of state school funds which can be invested in these gasoline tax warrants and the bond buying public and investment companies would greedily bid on such certificates. Other states sell them certificates.

The next legislature can pass a bill authorizing the issuance of these tax certificates and next year and for the next four years these roads will furnish employment for thousands of men in their construction and thus put in circulation money which we need in these hard times. And, just think of it, all with no increase in our taxes.

It would seem the part of wisdom for every doctor in Wyoming to vote against the $2,800,000.00 bond issue on November 4 and demand that men who go to the next legislature work out the Miller plan or some improvement along the same lines. It makes no difference who is elected governor as far as the bonds go. If we turn down the present bonding proposition the legislature will be compelled to pass a bill along the lines of the Miller plan and the state and counties can build not only the state highways, but, what to us is more important, farmer roads in our own counties. E. W.

IDENTIFICATION

An unknown and at present unidentified man who was a Pullman passenger on one of the evening east-bound trains leaving Sheridan was last seen alive in the vestibule of the last sleeper by the rear brakeman. A few minutes later the engineer of a west-bound passenger train saw a black and white object on the rails but too late to stop his train. On arrival at Sheridan he reported striking some object about six miles east of Sheridan.

A crew was sent out to investigate and found parts of a human body scattered along the tracks. In his clothes sixteen hundred dollars was found sewed in different garments, also a valuable diamond ring. All identification marks were removed from his clothing save a mark on his collar. His baggage, which consisted of expensive clothes and silk underwear, likewise failed to identify the stranger.

This leads us to remark that all people, unless they are criminals, should carry positive identification on their persons and in their baggage.

The following poem, author unknown, carries a thought that not only applies in this case but in another sense applies to all of us:

Some One, Somewhere

Is it not something, after all,
When paths divide, when shadows fall
To know that there is some one who
Wonders a little what you do.
Wonders a little where you are?
It may be near, it may be far,
It may be half the world around—
Is it not something to have found
Some soul, when other paths you choose,
You cannot have, yet cannot lose?

Is it not something, just to know
That when divided paths you go,
That never quite completely part—
That each shall carry in the heart
Some memory of other days

Before you went divided ways?
Is it not something just to feel
What hills may hide, what clouds conceal,
Although you know no clasp of hands,
That someone somewhere understands?

Oh, we may part from many a friend,
And every song must have an end,
But in the heart the song sings on
When he who sang the song is gone.
So think of someone somewhere who
Wonders a little what you do.
Wonders a little where you are,
Though very near or very far,
When paths divide, when shadows fall,
Is that not something after all?

(Author unknown.)

E. W.

WYOMING NEWS NOTES

CASPER—Dr. Nathan H. Einhorn, of Midwest, was called to Pueblo, Colo., recently upon the death of his mother who was killed accidently. Dr. Allen McLellan returned a week ago from Peoria, Ill., where he was called at the death of his father. These members receive our heartfelt sympathy upon the loss of their esteemed parents. Dr. J. C. Kamp left recently for a business trip to Denver. The Natrona Memorial Hospital has recently complied with all the requirements of the American College of Surgeons and now has an A Class rating. Dr. H. L. Harvey returned a short time ago from a big game hunt which netted the bag of one bull moose and one bull elk. Wouldn't the eastern doctors like this sport?

CHEYENNE—Dr. C. Y. Beard has been taking a little vacation and expects to return about November 1.

RAWLINS—The following note was received from ex-President Dr. C. W. Jeffrey, written on the back of the "S. S. Maui" menu. "Having a beautiful trip. Perfect sea and weather. Will get to Honolulu Tuesday a. m. Don't know how long I will remain, but will stay at least four weeks. Have closed my office. When I return to the mainland, wish to take a tour over southern California by the southern route, if necessary."

SHERIDAN—The Sheridan County Memorial Hospital recently received word that it had been granted an A Class rating by the American College of Surgeons by reason of its complying with all the requirements of such standing. The Staff of the Hospital and members of the County Medical Society will hold their monthly meetings as usual, but with an added attraction, that of an evening dinner. This ought to increase the attendance and add interest to the meetings.

COUNCIL ON PHARMACY AND CHEMISTRY

Recent bulletins from the Council on Pharmacy and Chemistry of the American Medical Association list the following newly-accepted products:

Aces Laboratory, Inc.
  Mercurochrome Suppositories Aces.
Cutter Laboratory.
  Diphtheria Toxoid-Cutter, 45 c.c. vial.
Hoffman-LaRoche, Inc.
  Synthetic Thyroxine.
    Ampuls Synthetic Thyroxine-Roche, 1.1 c.c.
    Solution Synthetic Thyroxine-Roche.
    Tablets Synthetic Thyroxine-Roche, 1 mg.
Winthrop Chemical Co.
  Mesurol.
    Ampules Emulsion Mesurol, 20 per cent, 1 c.c.
  Theocin.
    Tablets Theocin, 1½ grains.
International Vitamin Corporation.
  I. V. C. Vitamin Concentrate of Cod Liver Oil.
National Drug Co.
  Antimeningococcic Serum.
Parke, Davis & Co.
  Gas-Gangrene Antitoxin (Combined) Refined and Concentrated.
  Soluble Gelatin Capsules Park Davis & Company's Standardized Cod Liver Oil, 10 minims.
  Soluble Gelatin Capsules Parke, Davis & Company's Standardized Cod Liver Oil, 20 minims.
  Soluble Gelatine Capsules Parke, Davis & Company's Standardized Cod Liver Oil, 2.5 Gm.
  Soluble Gelatin Capsules Parke, Davis & Company's Standardized Cod Liver Oil, 5 Gm.
G. D. Searle & Co.
  Chiniofon-Searle.
    Tablets Chiniofon-Searle, 0.25 Gm. (4 gr.)
C. M. Sorensen Co., Inc.
  Inhalant Chloretone Creosote and Eucalyptol-Sorensen.
Spicer & Co.
  Tartro-Quiniobine.
  Tartro-Quiniobine Ampules, 2 c.c.
White Laboratories, Inc.
  White's Cod Liver Oil Concentrate.
Nonproprietary Articles.
  Quinine Bismuth Iodide.
  Sodium Potassium Bismuthyl Tartrate

The following articles hhas been exempted and included with the List of Exempted Medicinal Articles (New and Non-official Remedies, 1930, p. 477):

C. M. Sorensen Co., Inc.
  Inhalant Pine Camphor and Eucalyptol-Sorensen.
Eli Lilly & Co.
  Amytal.
  Pulvules Sodium Amytal, 3 grains.
  Old Tuberculin, Human Strain, Concentrated, 2 vial packages.
McKesson & Robbins, Inc.
  McKesson's Vitamin Concentrate of Cod Liver Oil.
E. S. Miller Laboratories, Inc.
  Ampoule Sterile Solution Dextrose, U. S. P., 5 Gm., 10 c.c.
  Ampoule Sterile Solution Dextrose, U. S. P., 10 Gm., 20 c.c.
Plant Products Co.
  Plant's Magnesia Wafers.

TUBERCULOSIS ABSTRACTS

A Review for Physicians

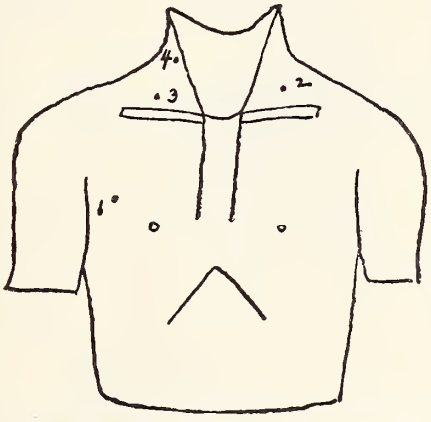
ISSUED MONTHLY BY THE NATIONAL TUBERCULOSIS ASSOCIATION

Vol. III November, 1930 **Number 11**

IN MAKING a physical examination of the chest, the general practitioner should be able to arrive at a correct diagnosis or conclusion in nine-tenths of the cases. Yet it is common experience that many cases of tuberculosis remain undiagnosed long after that should have been possible by the means now at our command. This unfortunate situation is due largely to the unsatisfactory method of teaching physical examination technique to the medical student and to the far too complicated treatment of the subject in our textbooks. Such is the opinion of James Alexander Miller, who in the foreword of "Procedure in Examination of the Lungs" by Arthur F. Kraetzer commends this little book as a "real contribution in simplifying the methods involved." Brief abstracts of the book follow.

Procedure in Examination of the Lungs

Conventional teaching of physical diagnosis is deductive. It starts with general principles and works down to the specific. Actual examination of a patient is inductive. It begins with the gathering of particular findings and then works upward to an inductive conclusion. Of course, the student must visualize the entire field of possibilities; he must have a descriptive knowledge of disease, but the development of a good examination technique is best acquired by the inductive method. The author follows this plan in his book, reproducing the actual steps taken in the clinic to gather the facts of an individual case and to deduce therefrom the causative condition or pathology. Chest diagrams amplify the text.



Four points are selected for comparative practice.

He says: "Nothing in Medicine is worse done than the early diagnosis of tuberculosis, and one of the factors that contributes to this is, I am sure, the unnaturalness and obscurity of early training. Not only the method, but also the matter, is vague. Nothing could be more confused, for example, than the classical and utterly obsolete classification of rales. The terms crepitant and subcrepitant are entirely ambiguous. They have no place in modern clinical terminology."

Systematic Practice Necessary

In learning to distinguish the characteristics of chest sounds as revealed by percussion and auscultation, it is well to practice leisurely and patiently on a willing, normal subject. Four topographical points are selected for comparison in the following order:

1. A point rather low in the right axilla (gastric tympany and heart sounds on the left may cause confusion).
2. The left supra-clavicular region.
3. The right, supra-clavicular region.
4. The side of the neck.

In percussion, the resonance or duration of sound is easily detected by asking, "Which sound lasts longer?" Determining the pitch of the percussion note is somewhat more difficult, especially for ears not delicately attuned. However, unmusical ears can learn to detect differences by trying to "sing" the sound elicited. The student should also remember that the duller of two notes is always the higher pitched. When the differences in resonance in the four points selected are distinguishable to the student, he begins to hear more subtle shadings.

In auscultation, the four selected points are compared for (a) intensity, or rather, loudness (one does not have to be a Laennec to determine that); (b) length of respiratory sound (which is quite as easy); (c) pitch of respiratory sound, being careful not to mistake intensity for higher pitch; (since loud sounds and those of high pitch are more readily heard than less loud sounds and those of less low pitch, it is easy to fall into the error of concluding that a loud sound is of high pitch, whereas it may actually be lower pitched) (d) the quality of breath sounds, such as that like the gentle rustle of microscopic leaves (vesicular) as heard well at point one, and at the other extreme the hollow tracheal sound as heard at point four. When the several differences and combinations of these qualities are mastered, the student learns to "synthesize" them in terms of the physiological and anatomical structures that give the sounds their characteristics.

With this preliminary mastery of the sounds of the four selected points of the normal chest, the student is next introduced to the study of the entire chest. Inspection comes first; in addition to general appearance, there are certain conditions which must be specifically looked for, such as the position of the trachea, the pitch of the chest, and clubbing of fingers. Then follows palpation, which includes tactile fremitus. Percussion is next pursued systematically and always by comparing one side of the chest with the other.

Rales and Their Meaning

The four succeeding chapters are devoted to auscultation, including one exclusively on rales. The author deplores the "strained effort to endow a particular rale with a specific and invariable significance," which has caused so much confusion in diagnosis. The most general and, at the same time, accurate statement he is willing to make about rales is that they represent either inflammation or transudation, which includes "about all that can happen to a lung." To interpret the meaning of rales, he recommends the following three criteria; namely, the consideration of:

1. All the data that have gone before under symptoms, inspection, palpation, percussion, and changes in breath-sounds.

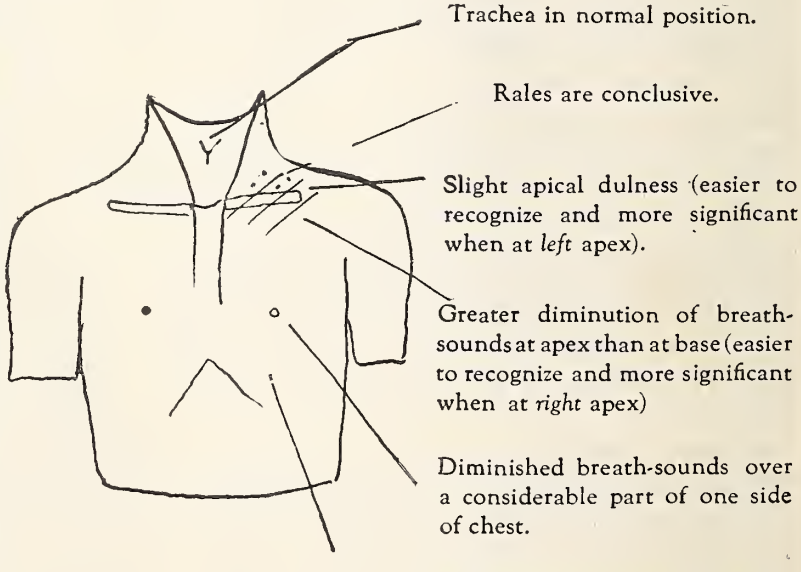
2. The geography of the rales, whether at the top, hilum, base, or some intermediate and unclassifiable area of the lung; whether unilateral or bilateral; whether localized or generalized; whether few or many.

3. The actual type of rale itself, whether dry, moist (fine, medium or large), sibilant or sonorous.

A fourth and often essential criterion is the X-ray. These criteria are carefully elaborated and described.

"Signs" of Tuberculosis

Chapter XI on "The Signs of Tuberculosis" bears as a sub-heading the scriptural quotation: "A wicked and adulterous generation seeketh after a sign, and there shall no sign be given unto it." This sentence, he says, is highly applicable to the diagnosis of tuberculosis. A positive sputum is the only sure sign of tuberculosis, but finding tubercle bacilli in the sputum is not diagnosing tuberculosis in the modern sense of discovering the process in its early stages and in the minimum of time. Tuberculosis is diagnosed by a skilled technique plus a peculiar synthetic discipline of the mind. This harmonizes with the observation of Miller, who in the foreword says: "physical signs are by no means always the most important evidence in making a diagnosis of pulmonary tuberculosis. In many, if not the majority of cases, the diagnosis should be suspected at least, if not really made, from the history alone, and in so many cases does it occur that physical signs are very scanty or absent or perhaps not pathognomonic, that if a student or physician acquires a habit of relying upon physical signs for diagnosis, many mistakes will result."



I. Diminished hreath-sounds over a considerable part of one side.
A. The area of diminished breath-sounds is resonant (except perhaps at the apex).
1. The patient is not in pain and is not dyspnoeic.
Diagnosis: Without apical rales tuberculosis is suggested. With apical rales, tuberculosis is certain.

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EDITORIAL NOTES AND COMMENT

HEALTH TO ALL

THE NATIONAL TUBERCULOSIS ASSOCIATION once more sends us its Christmas greeting and offers to us the privilege of sharing in its humanitarian work. The organized campaign to combat tuberculosis has been accompanied by a truly remarkable decline in the mortality rate from this disease. To what extent this decline is a consequence of organized effort and to what extent it is coincident and due to such factors as increased national prosperity and the development of labor saving devices, nobody is in a position to say. At least we may be sure that much human suffering has been alleviated and an enormous work of popular health education accomplished. Tuberculosis Associations have not limited their educational efforts to the subject of the prevention of tuberculosis. They could hardly have done so if they had wished. But they have had a broad vision of their responsibilities. Both locally and nationally the movement has drawn to itself men of distinction and intelligence, men who like the late Arnold S. Taussig have labored for years in the public service without ever appearing to the public eye. The report which is now being prepared for the Governor with the assistance of the Colorado Tuberculosis Association and which it is hoped will form the basis of legislation in the coming year is the outcome of selfless toil by men and women of goodwill throughout the state, as well as by the staff of the Association. The Denver Tuberculosis Association, as everyone knows, has played an important role in bringing all classes in the state to a consciousness of the importance and the urgency of our public health problems. Their service in the community is also dedicated to a broad conception of preventive medicine, and, while the prevention of tuberculosis is never forgotten, the Christmas message of Health to All is peculiarly appropriate to their programme.



Colorado Medicine will devote its next issue, the New Year number, to the subject of tuberculosis. Thanks to the support of several leaders in this special field, we are looking forward to presenting an issue of which we all may be proud. In the meantime let us give loyal support to the many loyal workers in the antituberculosis campaign. Let us assure them that, even though the year be financially a lean one, the sale of Christmas seals shall be bigger than ever before.

THE WHITE HOUSE CONFERENCE

The main recommendations of the White House conference* are very largely colored by the report of Section III of the conference. This section, on Education and Training, furnished an extremely well organized and constructive program. We would that as much might be said of all the sections. The section on medical service was handicapped by the fact that the related committees had not finished their task and even after the conference had been called from all parts of the country were compelled to meet in camera, closing their doors on the first morning of the conference to the assembled delegates. In the section on public health, committees had indeed reached a program but it contained so much well accepted material, as that milk is a valuable food and should be used more freely, that its more important suggestions are in danger of being overlooked.

Among these latter we note emphasis upon the value of the county health unit and the demand for increased appropriations for public health services from federal, state, local and private funds.

An excellent suggestion, coming from this section, is the recommendation to County and State medical societies to appoint advisory committees who shall confer with official health organizations.

A lively dispute which has been spoken of as "unfortunate" developed in the subcommittee to study reorganization of federal health services. The sub-committee had recommended that the maternity and infancy work of the Children's Bureau of the Department of Labor be transferred to the Public Health Service. Miss Abbott, who was a member of the sub-committee, wrote a dissenting minority report which was omitted from the official volume of preliminary committee reports.

The delegates who attended the first meeting of the conference in this particular subsection were quite obviously and militantly on Miss Abbott's side. The chairman made every effort first to prevent the delegates from speaking to the subject at all and then to block any effective expression of their views. But the weight of the very much consolidated women's organizations and the social workers from all over the country finally prevailed and the disputed recommendation has been referred to a continuation committee for unanimous agreement.

The dispute may be a most fortunate incident if it should draw the attention of the medical profession to the existence of organizations that have definite interest in child welfare and in its political organization.

It is quite probable that the proposal of the majority of the sub-committee was sound. What was evident was that the distinguished medical men on the committee were quite unaware that their suggestions were of interest to several million women, to many organized social workers and even to organized labor. Their attempt to muzzle the representatives of these interests showed even more clearly how far they are from political common sense. A protest which might have been temporary and futile is now in danger of becoming an emotionally debated issue in every corner of America.

There is a moral in this dispute that is applicable elsewhere. The problems of medicine are becoming and must increasingly become matters of public interest. Unless we have not only a rational programme for meeting medical social needs, but have also persuaded the public of the advantages of our programme, we may expect to find our influence in future legislation of astonishingly small account.

*Published on Page LVIII of this issue of Colorado Medicine.

RED CROSS USES RADIO AMATEURS

In case of disaster, when the old lines of communication are disrupted, the American Red Cross has at its command three thousand amateur radio operators belonging either to the Army or Navy radio reserves who are prepared to put through messages for the organization of relief. Important help has been given by amateurs in past disasters until normal communication has been restored.

GRADUATE STUDY FOR PHYSICIANS

One of his students defined a university thus: "Mark Hopkins on one end of a log, and the student on the other." This has been often quoted; because it emphasizes the essentials, and leaves out the accessories. For certain branches of medical study, laboratories and clinics are necessary. But if the interested student and the competent teacher are brought together, much may be accomplished with the accessories that can be carried in a hand-bag or a pocket.

The enormous field of medical knowledge, opened up by the discoveries of modern science, made undergraduate education for practice in four years impossible, as it had been found impossible to accomplish in two years a half century ago. Any one who means to prepare himself to practice medicine, or surgery, must keep on learning. From his own cases and by his reading all that he can; but more in medical societies, and in short courses arranged for him, at standard medical schools, and in lectures, clinics and demonstrations, that can be given in his own city or neighborhood, by the best available teachers. Such teachers are all whose own study has fitted them to teach special subjects that claim the attention of their colleagues. The problem before us now is to arrange for such teaching.

About fifty years ago there was an awakening to the need of continued study in medicine and surgery, and "post-graduate" medical schools sprang up in every large medical center in this country. Hundreds of practitioners sought them for the opportunities for study they had come to feel they needed. Some of these schools, merged or affiliated with universities, still carry on; developing their work in directions shown by experience as most likely to meet real needs of the profession. But they cannot possibly give the opportunities and assistance needed by the profession of the country.

The medical profession has to work out the simplest and most effective plan of bringing together its competent teachers and its interested students. Much can be done in this direction in our State Medical Societies. In Colorado something of this is being attempted, through our new Committee on Medical Extension. This committee can act to bring students and teachers into working co-operation. Although Colorado is larger than England, Wales and Scotland, and relatively poorly supplied with roads and railroads, it is favorably situated to take a lead in this new movement of our profession. It has a single University Medical School, an active State Medical Society, both well organized. Its physicians are accustomed to travel. In most of its towns and counties there are relations of courtesy and good will, among professional neighbors. Drawn from many states and countries, there is little of tradition, provincialism or chauvinism to overcome.

Two kinds of teaching can be quickly started and co-ordinated. The clinic week at the Medical School of the University has already been in operation. Its laboratories are established, and fairly manned to give intensive courses in laboratory branches, short enough to let doctors in active practice come to Denver to take them. There are already in the state a relatively large number of competent teachers, who are interested enough to go out, for a day or two, or a week at a time, to hold clinics, and to meet interested classes in different parts of the state; as soon as these have indicated what subjects they want to study. The first step is for the members of the profession in any locality to get together, and agree as to what they want to study, the time they can best meet for it; and the teachers they would like to have come to them; and also the best times for them to come to a graduate seminar at the Medical School.

Movements of this kind have been inaugurated in thirteen states, and in Canada, where the conditions rather resemble those in Colorado. The different plans proposed and tried have been well discussed in the sixty-eight-page pamphlet put out by the Extension Department of the University of Virginia. The plan proposed for that state has these basic features:

"To carry to the practitioner in his own

community, through the Department of Clinical Education, the progress and recent advances in medicine and surgery by means of diagnostic clinics, conferences, clinical reviews, etc., in certain localities and hospitals, mutually selected.

"To aid in the establishment ultimately of fully organized post-graduate educational and clinical courses by the medical colleges of the state; and

"To encourage and assist the State Society and its Journal."

No plan for "continuation studies" has yet been worked out that can be generally copied. But in Colorado suggestions to the "Extension Committee" are already in order. To find out the views and needs of the members is the first thing. Many pertinent and valuable suggestions came to the Virginia committee with the answers to the questionnaire they issued. The meeting of the expenses of this movement must have early consideration. In Canada a sum given by the head of an insurance company sufficed to pay the traveling expenses and a small honorarium for teachers, who went out to remote districts, sometimes for several weeks. Let us not wait for the Committee on Medical Extension to propose something; but begin now to send in suggestions and offers to the chairman of the committee, Dr. Maurice H. Rees, dean of the Medical School.

E. J.

WITHIN THE LAW

Social behavior is controlled far more by a sense of social responsibility than by legal restriction. Laws are made for a small minority of people who are without a sense of social responsibility. At the best they have a limited value, for only those who are not clever enough to evade the legal net find themselves trammelled by the fear of consequences.

It is the intention of the law that while osteopaths may pactice in Colorado, they shall practice as they are registered. It has come recently to our notice that an osteopath in the city of Denver is practicing under the pretense of double classification. Patients are naturally impressed with the claim that "I am an M.D. as well as a D.O." It is evident, they argue, that this individual has all the wisdom of the regular profession and certain additional qualifications in the new and esoteric practice of osteopathy. The patient has no means of knowing under what claims the title to practice in this state is granted, nor can they tell that the medical diploma in question was obtained from a college of no repute whose degree would never be recognized by the American Medical Association. The reputation of the osteopath is enhanced, the public is deceived and there has been no infraction of the law.

We regret to say that not all members of our own profession have a full sense of social obligation. A physician in this state, not a member of his county medical society, conducts a clinic for free advice to preschool children. Parents, attracted by the opportunity of getting something for nothing, take their children for the free advice and an attempt is then made to scare them into the belief that their child is in urgent need of treatment. This is an ancient device and the law has no hold upon its perpetrators.

Against such antisocial behavior there is a remedy more effective than legislation. When the public is educated in the history of osteopathy and the relative educational standards of the osteopathic schools and the regular universities of the country, they will no longer seek the mystical advantages of osteopathic care. There should also be somebody interested in explaining to trustful communities that professional advice which is given free is likely to be given from an ulterior motive.

The New York Academy of Medicine is blessed with a committee on public health relations whose reported activities for the year 1929[1] lies before us as we write and tell the story of co-operation with the city health department, the Diphtheria Prevention Commission, the Institute for Child Guidance and other health organizations; it includes a dignified recital of a successful

[1]New York Academy of Medicine, 5th Ave. and 103rd St., New York City.

protest to the commissioner of police against the raiding of professional records; it is concerned with housing propositions, zoning law, and the allocation of appropriations for health purposes by the city board of estimate. It is our impression that a medical committee of this kind could exercise a healthy influence upon the health education of the people of this city.

ECLAMPSIA AND HYPOCALCEMIA

A somewhat novel conception of the toxemias of pregnancy was presented recently by Dr. G. W. Theobald to the Royal Society of Medicine[1]. The theory of a diffusible placental toxin as the cause of eclampsia is rejected because of the geographical distribution of the disease, the marked decline of its incidence during the war, its virtual elimination by conscientious antenatal care, and the fact that more than 50 per cent of the full-term children born to eclamptic mothers are apparently healthy. The author's idea, supported by experimental evidence which is not altogether convincing, is that the toxemias of pregnancy result from toxins absorbed from the bowel which have not been detoxicated owing to the breakdown in the normal mechanism of defence of the body. This theory projects the problem to an earlier stage. What then, causes the breakdown of the defence mechanism? The liver fails suddenly in this detoxicating function, says Dr. Theobald, though he does not tell us why. He does suggest, however, that one factor may be an insufficiency of calcium ions in the blood stream. In pregnancy there is increased elimination of calcium associated with an acid urine. At the same time there is a heavy increase in the demand, chiefly due to the needs of the fetus but also to the requirements of the colostrum. If we accept this conclusion the assurance of an adequate supply of calcium in the diet of pregnant women becomes the first obvious consideration. The second would be the assurance of its absorption into the blood stream and control by biochemical observation of the blood calcium. Dr. Theobald's assertion that "at present, there is no known method of measuring the ionized calcium in the blood" seems a trifle too severe. Professor J. B. Collip of Montreal told delegates to the recent meeting of the British Medical Association at Winnipeg that the normal calcium content of human serum is 9 to 11 mg. per cent and that the content of ionized calcium is not more than 2 mg. per cent.[2]

[1]Theobald, G. W.: The Toxemias of Pregnancy: A New Conception, Proc. Roy. Soc. Med. 23:1539 (Sept.) 1930.

OCTOBER ENTERITIS

An unusual phenomenon appears to be recurrent in the city of Denver: an epidemic of enteritis late in the autumn. At this time of the year flies are not numerous. The thorough pasteurization of our milk supply would appear to exclude milk as a source of epidemic infection. Our water supply is filtered and moreover no excessive bacterial count has been reported. Moreover the recurrent epidemic does not appear to be confined to Denver alone, but, according to Dr. Amesse[1] who drew attention to its ravages nearly two years ago, it affects equally all parts of the state. This might at first sight be taken as an argument against Dr. Amesse's own theory of its origin, that organic poisons are formed in our reservoirs and being soluble pass through the filters. If this theory holds true we should expect to find that communities served by artesian wells would be immune from the epidemic. But no detailed study appears to have been made. It might be that epidemiological survey would show that in fact those who drink artesian water are immune. Is such a survey beyond the terms of reference of the Child Research Council? We might suggest to them and to our health departments that one hopeful avenue of investigation might be an inquiry into the ultimate destination of untreated sewage.

[2]The Lancet 2:607 (Sept. 13) 1930.

[1]Amesse, J. W.: Observations on the autumn type of diarrhea among infants in Colorado, Colo. Med. 26: (May) 1929.

(Continued on Page X, Advertising Section)

THE INDICATIONS FOR, AND THERAPEUTIC VALUE OF, SYMPATHETIC GANGLIONECTOMY AND TRUNK RESECTION IN THE TREATMENT OF PERIPHERAL VASCULAR DISEASES*†

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The correlation of disease and its anatomic and physiologic aspects may give rise to various opinions; hence one should analyze carefully all facts before advocating or condemning any new method of treatment. Progress has been made in the surgical treatment of Raynaud's disease, thrombo-angiitis obliterans, scleroderma, and periarticular arthritis in the extremities, but further investigations must be made before final conclusions can be given.

Two schools of thought prevail concerning the underlying causes of Raynaud's disease. In one school, the chief exponents are Krogh and Lewis in collaboration with Kerr (1929) who believe that defective circulation is due to spasm of the digital arteries and vessels of small caliber, without spasm of the veins, produced by cool temperatures and relieved by heat. Lewis stated that these phenomena are the result of abnormality of the artery, displaying itself in hypersensitivity of these vessels to the relatively low temperature, and that the effects of cold are not produced through the intervention of the nervous system. The other school holds that the phenomena of vasospasm involve small arteries, arterioles, and probably capillaries and venules, but that the vasoconstrictor impulses are of central origin and the local responses to heat and cold are normal reflexes carried over vasomotor fibers, and superimposed on arteries in different states of contraction.

Anatomy

The innervation of the arterial musculature arises in the sympathetic thoracicolumbar system, and that which supplies the arteries of the extremities reënters the spinal nerves as gray postganglionic fibers, to be distributed similarly to the somatic distribution of spinal nerves. Such innervation was once believed to be of centrifugal distribution, which gave rise to periarterial sympathectomy. The anatomic studies of Kramer, Todd, and Potts support the somatic distribution. Hence, operative procedures that are intended to divide vasoconstrictor fibers were changed from periarterial sympathectomy, to ramisectomy, ganglionectomy, and sympathetic trunk resection. Postganglionic fibers to the sweat glands and pilomotor muscles are mixed with the vasoconstrictor fibers; therefore, these functions are destroyed when one of the more radical operations on the sympathetic system is performed.

Physiology

The muscle tonus, or caliber, of the artery is regulated by the chemical or hormonal constituents of the blood, the vasoconstrictor impulses and the vasodilator impulses. With all nerves to an extremity sectioned, the arteries are found still to possess muscular tonus, but are dilated to a size larger than that which previously existed. Vasoconstrictor fibers carry a constant flow of impulses which are dependent on central influence and reflex stimuli; thus the caliber of the artery is subject to constant change. Hyperactivity of the vasoconstrictor center may result in complete constriction of the smaller arteries. Section of all vasoconstrictor fibers blocks central impulses, and the arteries remain dilated and unable to contract in response to central impulses and reflex stimuli to cold. The vasodilator mechanism is not thoroughly understood. There are supposed to be two centers, one in the medulla and the other in the lower portion of the spinal cord. It is Bayliss' belief that the efferent fibers pass antidromically along the sensory fibers to the arteries. Following sympathetic ganglionectomy and trunk resection, the skin will appear flushed and hot for twenty-four to

*Read before the British Medical Association, Winnipeg, Manitoba, Canada, August 26 to 29, 1930, and forming the basis of an extempore address to the Colorado State Medical Society at its sixtieth annual meeting in Pueblo, September 9-11, 1930.

†From the section on neurologic surgery, The Mayo Clinic.

forty-eight hours. Then the redness disappears and the increased temperature of the skin recedes 1 to 3°C., but over the hands and feet continues to remain elevated from 4 to 8°C. above the temperature previous to operation. It may be noted, also, that after operation the flushing phenomena cannot be reproduced by embarrassing situations. Besides chemical and nervous influences, the vascular musculature may be able to respond independently (Lewis), especially if ulceration has developed at the finger tips (Simpson).

Surgical procedures

Since 1899 surgical procedures on the sympathetic nervous system have been devised and modified as our knowledge of anatomy and physiology with its relationship to disease has grown. Jabouley attempted to relieve painful syndromes by stripping the femoral artery. Later, he and LeRiche performed periarterial sympathectomy for Raynaud's disease, and subsequently their operation was employed by many surgeons for various vascular, trophic and painful lesions. Jonnesco (1906) removed the stellate ganglion for angina pectoris. Brünning (1923) employed the same operation for the relief of Raynaud's disease and scleroderma, hoping to relieve pain and improve circulation of the upper extremity. Royle (1924) performed ramisection for the relief of spasticity and found temporary increase in the temperature of the skin. Von Gaza (1924) performed paravertebral thoracic sympathectomy for abdominal complaints of vascular origin. Brown and Adson (1924) employed calorimetric studies before and after lumbar ganglionectomy and trunk resection which proved that permanent vasodilation followed this procedure. They also demonstrated the importance of establishing some criterion which might be used in selecting proper cases for operation. Diez (1924) reported lumbar and sacral ganglionectomy for vascular disorders. Since then, others have demonstrated, also, that the increased flow of blood recorded by elimination of heat and increased temperature of skin continued following the operation and did not relapse, as was noted so often after periarterial sympathectomy.

Clinical consideration

The real problem is to select suitable cases for operation and to decide when operation is indicated. It is obvious that vasodilation cannot be produced in an arteriosclerotic or occluded artery, and that surgical intervention is useless unless there is positive evidence that the disease has resulted from an inadequate supply of blood, vasospastic in character. The vasospastic phenomena may be intermittent or continuous. If they are intermittent and mild, disturbing symptoms or trophic changes do not occur, since complete recovery takes place between the attacks of vasospasm, but as the degree and duration of spasm increase, the symptoms increase and destructive changes appear.

Vasomotor index

In a search for some means to determine the flow of blood to an extremity, the capillaries, elimination of heat, and surface temperature were studied. These procedures do not measure exactly the volume of blood, but give relative estimates, since one can observe the number of capillary loops to a given field and determine the rate of flow of the corpuscles, and since the elimination of heat and the temperature of the skin are dependent on the flow of blood. The Stewart-Kegerreis calorimeter recorded the heat radiation before and after operation, but it was not until Brown suggested recording the temperature of the skin before and during fever that there was any accurate knowledge concerning vasospasm. The electrothermocouple electrodes are fastened to the various areas over the fingers, toes, hands, feet and body, in preparation for readings of surface temperature. First, readings are recorded of the room and of the surfaces of the mouth and skin, in order to compare them with the readings of a normal person and to compare them further with the readings during the height of the fever. The fever is produced by administering, intravenously, a foreign protein, for example, 5,000,000 to 75,000,000 dead bacilli in triple typhoid vaccine, the dosage depending on

the weight and sex of the patient. Hourly readings are made until the maximal rise of fever has been obtained. These readings are compared with the initial temperatures, to determine the ratios of increased temperatures. General, regional, and spinal anesthesia produce vasodilator effects and can be employed in place of administering protein. In studying the temperature of a normal person, it will be observed that the mouth temperature may have increased to an average of 2°C., whereas the temperature of the skin over the digits will have increased 4° to 6°C., or two to three times the mouth temperature, indicating that the peripheral arteries have been opened by inhibition of the vasomotor center and that more blood has been permitted to flow to the periphery.

In cases of vasospastic disorders, the difference in temperature is still greater, since the initial surface temperature over the digits is lower than that of a normal subject exposed to the same room temperature. In cases of general arterial sclerosis there may be little, if any, difference in the temperatures before and after administration of the foreign protein, indicating that the vessels are incapable of relaxing to allow increase of the flow of blood to the periphery. In cases of thrombo-angiitis obliterans it is possible to determine whether or not there exists a vasomotor spasm of the collaterals and unoccluded arteries; it is possible, too, to determine, by individual readings, the condition of each digit. Therefore, the test serves as an index, and unless the rise in temperature of the skin over the digits is two or more times greater than the rise of the mouth temperature, the condition is considered inoperable.

Raynaud's disease

Mild vasospastic phenomena such as cold, moist hands and feet, or symmetric pallor of one or more digits without pain, numbness, or trophic changes can scarcely be interpreted as constituting the symptoms of Raynaud's disease, although in such cases the physiopathologic state is identical to that in Raynaud's disease. The diagnosis of Raynaud's disease is reserved for cases in which there is symmetric pallor, followed by cyanosis in which it is difficult to induce recovery, and in which the patients complain of numbness and aching pains during the stages of pallor. This condition is most common in young, asthenic women and in women of middle life who are chronically fatigued and subjected to severe mental strain. The milder forms of the disease rarely require special treatment. The slowly progressive forms may be controlled by improving social and economic states, such as avoiding certain social contacts, making new friends, avoiding over-fatigue, changing occupation, changing climate, or wearing warmer clothing. The severe types continue to progress in spite of medical measures, and trophic changes appear, such as deformed nails, dry ulcers, scleroderma, and occasionally gangrene of the digits.

When medical treatment fails, surgical procedures have been instituted with the purpose of relieving vasomotor spasm. It has been proved that vasodilatation results from section of vasoconstrictor fibers, that increased temperature of skin from the injection of foreign proteins can be reproduced by sympathectomy and that the increased flow of blood in terms of increased elimination of heat continues and does not recede to preoperative levels. Following the interruption of all vasoconstrictor fibers, the pain disappears, swelling subsides, ulcers heal, nails grow, the characteristic color changes disappear, arterial pulsations increase, and the skin appears normal, pale pink and distinctly warmer and drier.

The outstanding postoperative phenomenon is that the asphyxia which is followed by cyanosis cannot be produced by cool air or by water baths, unless ulcers exist at the finger tips (Simpson, 1930), nor can it be produced by emotional disturbances. Further proof of continued vasodilatation is found when preoperative and postoperative measurements of retinal arteries have been made, in connection with cervicothoracic ganglionectomy and trunk resection, since the postoperative measurements will reveal arteries dilated from a fourth to a half of the preoperative measurements (tabulation).

Tabulation

Measurements of pupils, fissures and retinal vessels before and after cervicothoracic ganglionectomy (After Wagener)

Case	Diagnosis	Pupils, mm.		Fissures, mm.		Arteries, mm.		Veins, mm.	
		Pre-operative	Post-operative	Pre-operative	Post-operative	Pre-operative	Post-operative	Pre-operative	Post-operative
1	Raynaud's disease	Right 3 Left 4	Right 2 Left 2	Right 11 Left 12	Right 10 Left 11	0.05–0.06	0.06–0.075	0.025	0.1
2	Soleroderma	Right 2 Left 2	Right 2 Left 2	Right 10 Left 10	Right 11 Left 11	0.05–0.06	0.05–0.075	0.06–0.075	0.06–1.0
3	Buerger's disease	4	4	13	13	0.05–0.06	0.05–0.075	0.06–0.075	1.0
4	Raynaud's disease*	Right 3** Left 2**	Right 4.5† Left 2 †		Right 15 Left 10	Right 0.06 Left 0.05	Right 0.06 Left 0.08	Right 1 Left 0.075	Right 1 Left 1

* Since the cervicothoracic ganglionectomy was incomplete on the right side and was complete on the left side the right pupil dilated after cocaine. There was no narrowing of the palpebral fissure, nor were the retinal arteries dilated. On the left side the pupil did not respond after the administration of cocaine. The palpebral fissure was narrowed, and the retinal arteries were dilated.

** Before cocaine.

† After cocaine.

The surgical procedures in the early development of treatment were too limited to include all vasoconstrictor fibers, which accounted for temporary and incomplete results. The approaches to the rami supplying the lumbar and sacral nerves may differ, but the ultimate result is the same if all vasoconstrictor fiber to the arteries of the lower extremities have been divided. The removal of lumbar ganglia and section, in part, of presacral fibers in lumbar sympathetic ganglionectomy have not produced clinical symptoms, even though inhibitory impulses and tonus of the internal sphincters of the bladder and large bowel have been reduced.

Sectioning all lumbosacral vasomotor fibers has been much easier than sectioning all vasomotor fibers to the upper extremity. Adson and Brown have not observed recurrent signs of Raynaud's disease in the lower extremities following lumbar ganglionectomy and trunk resection. Such resection includes the second to the fourth ganglia, with the intervening trunks.

Periarterial sympathectomy of the brachial arteries, removal of the stellate ganglion by the anterosuperior approach (Jonnesco-Brünning) and ramisectomy (Royle, 1927) have given only temporary or partial relief in the treatment of Raynaud's disease. In the light of Kuntz and Henry's anatomic studies, and my experiences with lumbar ganglionectomy and trunk resection in the treatment of Raynaud's disease, I employed a posterior intrathoracic approach. The results were similar to those in the lower extremities and remained permanent, but occasionally Horner's syndrome on one side was less marked than on the other, a small area of sweating could be observed, and localized areas of color changes appeared which gave evidence of fibers having been missed. Recently, I increased the scope of the operation. The mediastinum was entered by resecting the first rib on each side of the spinal column, removing the lower cervical and the first thoracic sympathetic ganglia with the trunk, and dividing all rami and spinal nerves entering or leaving the trunk of the first thoracic spinal nerve, with the result that Horner's syndrome has been positive and has remained equal on both sides, and areas of sweating have not been observed.

The occasional recurrence of localized signs in limited areas of the upper extremity suggests that vasoconstrictor fibers were missed rather than that regeneration had occurred or that different phases of the disease in the upper extremity than that in the lower extremity are being dealt with. It is true that venous stasis accompanies advanced Raynaud's disease of the hands,

which is altered by position either before or after operation.

Thrombo-angiitis obliterans

Thrombo-angiitis obliterans has a predilection for young, asthenic, nervous male patients, but occurs also in robust male patients and in women. It has been noted in women who have had Raynaud's disease for a long time, with accompanying sclerodermic and arthritic changes. It occurs most commonly in the arteries of the lower extremities, often affecting one side more than the other, but, in its slow process, may involve all the arteries of the extremities. The initial symptoms are intermittent claudication and rest pain, accompanied by occlusion of terminal arteries, localized areas of phlebitis, passive congestion, and swelling. When the disease progresses, ulcers or gangrene of the digits result. The course of the disease varies; in some cases it is mild and becomes arrested under medical treatment, in others it progresses slowly, and in the severe types gangrene quickly ensues. In view of this devastating process, Brown and Adson carried out studies on the vascular system similar to those carried out in Raynaud's disease. They found marked vasospasm of the collateral and unoccluded arteries which, in their opinion, aggravated the primary lesion and hastened the process of ulceration and gangrene. It was obvious that operation was not needed in milder cases which responded to medical treatment, and was useless in extreme cases in which there was extensive gangrene. It has proved of great value, however, in cases in which the lesion was slowly progressing and in cases in which patients were unable to sacrifice the time required to rest in bed and receive local heat, contrast baths, and vaccine. Operation immediately improved the circulation, relieved the swelling, reduced the pain, hastened the healing of ulcers and aided the spontaneous amputation of dead digits at lower levels than surgical removal would have required. The improvement in circulation apparently checks the progress of the disease and prevents its development in the opposite extremity. Patients have been observed for five years following operation.

Scleroderma

O'Leary (1929) stated that a third of the patients consulting a dermatologist for scleroderma give a history of vasospastic phenomena simulating Raynaud's disease. Scleroderma also may accompany thrombo-angiitis obliterans and certain types of arthritis. The vascular spasm differs in that it is more or less continuous and produces a constant reduction of blood to the extremities. Since the spasm and cyanosis can be temporarily relieved by the application of heat, by the use of general, spinal, and regional anesthesia, and by the administration of vaccine, these cases were studied similarly to those of Raynaud's disease. The changes that follow simulate those that arise from a too tight plaster cast: cyanosis, swelling, pain, atrophy, contracture, deformities and disuse. This type of scleroderma differs from the amorphous type in that the disease affects chiefly the skin over the hands, the forearms, the face, the neck, the feet and the lower part of the legs, and to a lesser degree the skin over the upper part of the arms, back of neck, and scalp. The atrophy and contracting processes of the skin are associated with similar processes in the underlying structures and it is not unusual for a patient to complain of weakness and disuse of muscles, and inability to open the mouth or protrude the tongue. Arthritic changes often become manifest in the fingers; these are referred to as sclerodactylia. The changes associated with scleroderma are more pronounced in the skin of the uncovered parts, such as the hands, forearms, face and neck, than they are in the covered parts, which suggests that reflex stimuli of cold accentuate an existing vasomotor spasm. The fact that underlying tissues are subjected to atrophic changes suggests that vasospasm is not confined to the vessels of the skin but does interfere with the circulation of all tissues. Care should be exercised in selecting suitable cases since the hide-binding process of scleroderma strangulates and destroys capillaries and arterioles which naturally cannot be opened by a vasodilating procedure. The vasomotor index again serves its purpose in the selection of operable cases. The post-

operative results are dependent on the state of the disease. The vascular phenomenon is corrected as in Raynaud's disease and rehabilitation of skin and adjacent tissues will take place if vasomotor spasm is present and not too many capillaries and arterioles have been destroyed. If it is not possible to demonstrate the desired increase in surface temperature by the administration of protein, little is to be expected from operation. Ankylosed joints are not loosened by sympathectomy. It is wiser to choose the earlier cases as improvement is more prone to occur in these cases than in the advanced cases in which deformity has taken place.

Chronic arthritis

Because of the satisfactory results of lumbar sympathetic ganglionectomy and trunk resection in Raynaud's disease of the lower extremities, Rowntree suggested that the procedure be tried in a case of polyarthritis with vasospastic phenomena in which the condition was becoming progressively worse under medical treatment. The result was satisfactory and since then numerous cases have been reported. However, the surgical procedure is limited to young persons who complain of cold, wet, pale, clammy skin and painful, swollen, tender joints with atrophy and contracture of the muscles. The procedure is of greatest value in the treatment of arthritic processes in the hands, wrists, feet and ankles; it is less effective in arthritic lesions of the elbows, shoulders, knees and cervical portion of the spine; it offers scarcely any relief in affections of the hips, and is contra-indicated in cases of lesions of the thoracic and lumbar portions of the spine.

Rowntree and Adson stated that operation on the sympathetic system is not indicated in any arthritic condition until thorough investigation and intensive medical treatment have been employed, but if the lesion is progressive (inactive only when receiving some form of heat which improves the circulation locally) operation is advisable. Similar studies should be made and similar indications should be observed as in the treatment of other vasospastic disorders.

Sequelae

At the Mayo Clinic, for various vascular lesions, lumbar ganglionectomy and trunk resection has been performed on the right side ninety-five times and on the left side ninety-nine times; cervicothoracic ganglionectomy and trunk resection has been performed on the right side fifty-three times and on the left side fifty times in one hundred and thirty-three cases. There were three deaths, all in cases of thrombo-angiitis obliterans, following lumbar sympathetic ganglionectomy and trunk resection. Cervicothoracic operation had been performed previously on two of these patients. One patient died of postoperative ileus, one of coronary occlusion, and the other of pneumonia.

A few patients complain of excessive heat immediately after operation; this symptom usually subsides after two or three days. In only one case, in which operation was performed for scleroderma of the lower extremities, did the complaint persist during hot weather. Absence of sweating and presence of dryness of the skin always follow the operation, but the dryness is readily relieved by the application of lanolin or cocoa butter. Symptoms referable to the bladder or bowel did not follow lumbar sympathetic ganglionectomy and trunk resection in any case. It has happened that the pleura was opened, unintentionally, during the cervicothoracic operation, with partial pulmonary collapse, but the patient recovered without complications. Empyema did not follow the intrathoracic approach although it has been known to occur. Bilateral Horner's syndrome follows the present cervicothoracic operation, but it rarely is complained of unless it is unequal, in which event it is disfiguring. The lids droop slightly and the pupils remain contracted, but there is no serious interference with vision in the dark. Slight conjunctival congestion and stuffiness with increased serous secretion of the nasal mucosa occurs, but rarely gives rise to complaint. In two cases, the brachial plexus on one side was slightly injured during operation: in one case from malposition on the operating table with pressure on the plexus, and in the other case by traction.

Postoperative tenderness of muscles and nerves occurs frequently in cases of scleroderma and arthritis; it occurs occasionally in thrombo-angiitis obliterans and rarely in Raynaud's disease. The tenderness occurs on about the tenth day and persists for from six to twelve weeks; in some cases of scleroderma, it has been known to persist for six months. Apparently, it is associated with the rehabilitating process of the muscles, and not with any trauma to the nerve, since it is not complained of immediately after operation. Claudication pains, although mild, may still persist following operation for thrombo-angiitis obliterans. Recovery from scleroderma and arthritis is slow but satisfactory. In isolated cases of Raynaud's disease of the upper extremity it is hoped that the localized, recurrent symptoms will cease as a result of recent surgical modifications.

Summary

It is apparent that cool temperatures aggravate, and that local heat relieves, vasomotor spasm, which may result from changes in the artery if ulceration is present but suggests, rather, that the color changes are responses to nerve reflexes.

It is fair to assume that Raynaud's disease is primarily of central origin, since the disease may progress in hot climates; it may produce color changes in a hot room when the patient is subjected to emotional influences, and it fails to produce asphyxia and cyanosis during fever, or under spinal or successful regional anesthesia; neither are color changes produced following successful section of vasomotor fibers. Further support of the theory of central influence is found in the permanent vasodilator effects obtained by studies of elimination of heat, temperature of the skin and measurements of the retinal vessels following operation.

In peripheral vascular disease, the more extensive operations on the sympathetic rami, ganglia and trunks result in improved circulation and amelioration of symptoms with arrest of the disease.

Sympathetic ganglionectomy and trunk resection is a major operative procedure. It should be employed only in carefully selected cases.

Further observation of patients who have been operated on, further studies of allied vascular lesions, and progress in surgical development will be necessary before final conclusions can be reached.

DISCUSSION

O. M. Gilbert, Boulder: May I ask Dr Adson what experience they have had with the Silbert method of injection of hypertonic salt solution in Buerger's disease.

C. E. Harris, Woodman: I would like to ask the doctor if he has had any experience in the treatment of colonic spasm, or Hirschsprung's disease.

J. R. Jaeger, Denver: I have followed Dr. Adson's work with a great deal of interest, and he is to be congratulated upon its thoroughness. The neurological surgeons have been watching Dr. Adson's work and following it closely. There have been certain things which have held the neurological surgeon back. He has been afraid that the results that have been reported by physiologists would be true, that is, that this operation would not cause a permanent vascular dilatation. The neurological surgeon has always been afraid to work around large nerve trunks because of the fact that we frequently get a traumatic neuritis, which is a disabling thing. Occasionally we have operated on the desperate cases, but in general we have been waiting and watching the outcome of Dr. Adson's work. For a number of years I have been particularly interested in this subject, and I still am, and I am sure that Dr. Adson and his co-workers in the neurological field will go further into this subject. Three years ago I operated on a man with Raynaud's disease of the upper extremity, and I can say as to the permanency of the vascular dilatation that this man has as much dilatation in that hand now as he had immediately after the operation. It saved his fingers, for which he has been very grateful. It is true that he has a unilateral Horner's syndrome, but it does not interfere with his sight, and I am sure if he had had a bilateral operation he would not have known he had a Horner's syndrome. The procedure of Henry's which makes a posterior approach is perhaps superior to the anterior one. I think that Dr. Adson is to be congratulated highly on his work, and that in years to come we shall find that this operation is certainly a very useful procedure in many distressing conditions.

Leonard Freeman, Denver: I should like to ask Dr. Adson to say something about the use of diathermy.

Dr. Adson (closing): I appreciate the generous discussion of my paper and shall attempt to answer the questions that have been asked.

At the present time, we are not using hypertonic solution.

The treatment of asthma, in time, may come under the jurisdiction of the neurosurgeon, but much experimental work will be necessary before any theories can be propounded. Apparently, the vagus nerve plays an important rôle in the production of asthma, and if the disease is to be relieved, it will be necessary, probably, to section the branches that enter the hilum of the lung through a thoracotomy wound, including dissection of the sixth, seventh, and eighth ribs on each side.

I am unable to express a definite opinion about

pylorospasm. It is possible that this disturbance is to be accounted for by nerve unbalance, similar to the disturbance in Hirschsprung's disease, in which the stimuli over the sympathetic nerves are more active than those over the parasympathetics, and that section of the sympathetic fibers permits normal emptying of the large bowel.

With reference to the posterior, intrathoracic approach to the cervicothoracic ganglia, Dr. Jaeger will find that in 1911 Sherrill contributed information concerning ligation of the subclavian arteries and exposure of the thoracic ganglia.

I doubt that diathermy is of any permanent value in the treatment of vasospastic disorder. It has been tried, both in arthritis and in thromboangiitis obliterans, and also in a case of Hirschsprung's disease that I know of. The surgical mortality associated with sympathectomy is exceedingly low, from 1 to 2 per cent.

So far as postoperative complications are concerned, patients operated on for scleroderma are the only ones who complain of excessive heat following sympathetic ganglionectomy; however, this is not a serious discomfort. Patients operated on for scleroderma and arthritis experience muscular pain, due apparently to engorgement of the muscles with blood; usually, this disappears in from six weeks to six months. If operation is complete, the skin is dry and free from perspiration. Horner's syndrome is a possible sequel to the cervicothoracic operation but, if the change is bilaterally equal, it is not disfiguring. Two patients complained of weakness in the arm, due to traction on the brachial plexus. Both recovered without any permanent disturbance. Abdominal postoperative hernia has occurred, but is no more common than hernia following the usual laparotomy. The wound heals as readily as other surgical wounds, except in the cases of scleroderma, in which special care is required.

SPINAL ANESTHESIA

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Since the beginning of the history of medicine there has existed between the doctor and patient an unwritten law, that it is the duty of the doctor to avail himself of every means to preserve the life of the patient. Invariably the attending physician, who is in doubt as to his diagnosis and treatment, calls for consultation, and avails himself of laboratory methods; likewise the surgeon, but how about the anesthetists? The past few years have seen marked advancement in surgery, likewise in other specialties, but not so in anesthesia which is still largely induced by the old drop method. To administer inhalation anesthesia to patients suffering with diabetes, nephritis, acidosis, pernicious vomiting, hypertension, bronchitis, pleurisy, alcoholism, decompensated heart, strangulated hernia, intestinal obstruction, ilius and peritonitis, is not adhering to that unwritten law, and is not progressing like the other specialties of the profession, and is greatly adding to the hospitals' mortality list.

At present the subject of spinal anesthesia is receiving more and more attention from the profession, but due to prevalent misconceptions this method has failed to attain its merited position. Spinal anesthesia has at last emerged from the dangerous period in which it has existed for years, although no anesthesia can be considered without danger. It requires accurate and precise technique for uniform results. The technique of the administration of spinal anesthesia is becoming standardized. The important influences of the point of injection, dosage, force and rapidity of injection, rapidity of diffusion-upward, concentration and specific gravity of solution used, its location, duration, and degree of analgesia, are now standardized and injury to the dura is greatly decreased.

Patients unsuited for spinal anesthesia are carefully weeded out, or greatly fortified for the ordeal. Proper and efficient measures to prevent circulatory failure and asphyxia have been discovered and standardized. However, ignorance of this method of analgesia, or faulty technique may cost the patient his life.

A well performed operation brings a sense of satisfaction to both patient and surgeon; how much greater the achievement when accomplished with comfort and safety to the patient. Spinal anesthesia offers to the operating surgeon the stimulus of an advanced technical method directly under his control. Under spinal anesthesia the operator finds his patient in ideal condition for the operation. First of all his patient is awake and retains all of his mental faculties, and at the same time complete freedom from pain and sensation in the region of operation; that is, providing the operation is below the diaphragm. The tissues, particularly the abdominal muscles, are completely relaxed causing less

trauma from handling internal organs. The intestines are contracted and do not protrude from the incision. The brain, liver, kidneys and lungs are practically free from the toxic action of the anesthetic. The shock from operation, and handling of the internal organs, is reduced due to blocking of the sympathetic nerve ramifications.

After reviewing all available literature on this type of anesthesia, and after observing a large series of cases to whom it has been given by such men as Allen, Labat, Evans and Pitkin, it is my conviction that these misrepresentations are unwarranted. In this paper an endeavor is being made to discuss the following aspects of spinal anesthesia:

1. Selection of patients; the indications and contra-indications to spinal anesthesia.
2. Complications accompanying and following spinal anesthesia.
3. Physiochemical phenomena accompanying spinal anesthesia.
4. Drugs used.
5. Technique.

Selection of patients

The selection of patients for spinal anesthesia is very important. In some cases spinal anesthesia is the only type of anesthesia to employ; in other types of cases it is the best anesthesia to employ.

It is essential that a thorough history be taken, and complete physical examination made before using spinal anesthesia so that the contra-indications may be recognized. Although the contra-indications are few, they are definite and cannot be disregarded.

If an operation below the diaphragm is necessary to sustain life, and a general anesthesia cannot be given, there is no contra-indication to spinal anesthesia.

The following are contra-indications for spinal anesthesia:

Any marked involvement of the cerebro-spinal nervous system, such as brain tumors, cord tumors, intra-cranial or intra-spinal hemorrhage, syphilis, meningitis, or any case with turbid spinal fluid.

Any mechanical obstruction or limitation to the organs of respiration that might lead to respiratory embarrassment are included in this list also. This list does not include tuberculosis, except in the last stages where you find lowered resistance and low blood pressure.

Cases of hypotension are poor risks for spinal anesthesia, although Dr. Pitkin does not agree with this statement.

Septic cases with positive blood cultures should never be given spinal anesthesia.

Patients with unstable circulatory systems do not react well to sudden vasomotor changes.

Suppuration at the site of puncture is positive contra-indication for spinal anesthesia.

Extremely depressed patients, or patients in severe traumatic shock are poor operative risks under spinal anesthesia.

The emotional or neurotic cases are poor subjects for spinal anesthesia, as well as those approaching fourscore years and ten.

Indications and advantages

The indications and advantages of spinal anesthesia are:

It may be used freely for any operation below the diaphragm, and with safety below the umbilicus; also in any case where general anesthesia is dangerous. It is certainly indicated in patients who have a fear of an anesthetic or loss of consciousness, and spinal anesthesia permits closer observation of the general condition of the patient at all times.

Properly induced, the analgesia is complete, and the relaxation of abdominal muscles along with the contraction of the intestines gives perfect exposure of the operative field and packs and pads are as a rule unnecessary. The operation can be performed more rapidly, and with less trauma to delicate tissues.

Fluids and food may be given until the time of operation, and immediately following.

Violent nausea and vomiting following the operation are absent.

Gastric and intestinal distention are absent.

Postoperative shock is absent due to blocking of afferent nerve impulses during the operation.

In all cases with heart, kidney, liver and lung involvements, spinal anesthesia is the anesthetic of choice.

Cases of high blood pressure are poor anes-

thesia risks, but are good cases for spinal anesthesia in the absence of cardiac weakness.

Low blood pressure has always been considered a contra-indication to spinal anesthesia until within the last year, but it has been found that with the use of adrenalin or ephedrine, the blood pressure can be made to rise instead of fall during the operation. Dr. Pitkin reports operations under spinal anesthesia with blood pressure as low as 86 systolic.

Cases showing signs of renal dysfunction such as blood urea, albumen, casts and sugar in the urine, are much better subjects for spinal anesthesia than for ether inhalations.

In cases of intestinal obstruction and paralytic ilius, spinal anesthesia is a specific. Drs. Pitkin and Cosgrove have shown that spinal anesthesia has a definite place in modern obstetrics.

Dr. Polak in a recent report on eclampsia before the American College of Surgeons, stated that inhalation anesthesia is a great contributor to the increased mortality records, and whether delivery is to be made by a cesarean or instrumental aid, spinal anesthesia is the only form to use. By using this the mortality is decreased 31 per cent over the mortality of inhalation anesthesia.

Dr. Pitkin, chief surgeon for the Holy Name Hospital, Teaneck, New Jersey, states that spinal anesthesia is almost a specific in general peritonitis and as yet he has never lost a case, while the hospital's mortality rate is 22 per cent. Dr. Wayne Babcock of Philadelphia reports a mortality of 3.5 per cent in general peritonitis while his hospital has a record of 18 per cent.

To be successful with this form of anesthesia one must be able to visualize the manner, the extent and the duration and action of this drug when it is injected into the subarachnoid space. The surgeon should understand the phenomena and be able to detect the danger signs and know how to combat them. He should be able to calculate the concentration of his dosage and the extent of its diffusion. He should know and understand the physiochemical reaction between the drug and the spinal fluid which bathes the nerve roots.

The anesthetic action is almost instantaneous because these nerve fibres are very sensitive and easily permeated by the drug, which produces a physiologic block thereby interrupting conduction of nerve impulses along the fibres of the nerve roots.

Experiments with dyes have led to the conclusion that the nerve is penetrated by the drug possibly 2 cm. beyond the inter-vertebral foramen. If the anesthesia is incomplete it cannot be increased except by repeating the injection. If an overdose is given it will exert its toxic effects until eliminated, which is from forty minutes to one and one-half hours. The drug is excreted with the spinal fluid into the lymphatics, thereby entering the venous circulation where it loses its activity. Fortunately, the posterior roots are more readily blocked, being more susceptible, and come in contact with the drug first, causing loss of sense of pain, temperature, and muscle sense; while the anterior roots (motor nerves) are only partially involved by the drug, depending upon the position of the patient, method of injection, and size of dose.

In spinal anesthesia there is, first a loss of sense of pain, then of the tactile sense, then of the motor sense, then of muscle power, and last of vaso-motor control. As the action of the drug wears off, conduction returns in the reverse order.

Drugs for spinal anesthesia

First of all the drug must have a low toxicity in proportion to its ability to anesthetize, it must be soluble in a small quantity of water or of spinal fluid; it must be a stable compound and sterile. There are several different preparations on the market such as stovocaine, novocaine, tropacaine, neocaine.

In searching the literature on this subject I find that Barker, Babcock, Deaver, Labot, Lahae and Evans use novocaine or some derivative thereof, such as spinocaine or neocaine, which is put up in 10 and 12 cgms. ampules.

The dose is one cgm., or 1/6 grain for every 15 pounds of body weight; less is given to old people in proportion to body weight, and more to children in proportion to body weight.

Dr. George Pitkin has perfected a preparation called spinocaine which consists of:

Strychnine sulphate	.0022	grains
Novocaine	.195	grains
Starch paste	.13	grains
Alcohol	.324	grains
Normal salt	2.000	grains

Dr. Pitkin calls this preparation "controllable" spinal anesthesia, and it is, I think, rightly named. I watched Dr. Pitkin do a number of spinal injections and operations, and personally took blood pressure readings before, after and during the operations with practically no variation. This preparation is lighter than spinal fluid, and for that reason should never be given to a patient in a sitting position. The height of anesthesia is controlled by the amount of Trendelenberg position. It can be kept low for perineal work or can be made to ascend to the costal margin with perfect safety. The starch paste prevents rapid diffusion with spinal fluid, lessening chances of sudden fall of blood pressure and shock, and also prolongs anesthesia. The compound is non-irritating, inert, and soluble. The strychnine stimulates the vasomotor constrictors and sympathetic, thereby preventing the blood from collecting in the great splanchnic pools, causing rapid drop of blood pressure and syncope.

Technique of spinal anesthesia

Before an operation it is the duty of the surgeon to talk with his patient and to tell him of the advantages of this form of anesthesia. The patient may talk with patients who have already had spinal anesthesia in order to establish confidence, so that he will come to the operating room calm and self-possessed. The patient should be taught to breathe deeply through the mouth so as to clear up slight nausea if present. Veronal, or some mild sedative should be given the night before an operation. Morphine and scopolamine are the narcotics given previous to operation.

Patients ears should be stuffed with cotton, their blood pressure taken, and the instrument left in position in order to take frequent readings. Complete equipment for administering the anesthesia should be sterilized and placed in readiness on a sterile table. All emergency treatments should be in readiness: that is, gas oxygen tank and adrenalin, 1 mm. to 100 c. c. of normal salt solution for intravenous use. The needle should be strong yet flexible, of small diameter, about 18-20 gauge, with a point that is beveled off at a 45° angle, and with sharp cutting edge, extending only half way up the bevel. This lessens the pain and dural trauma and allows immediate closure of the dural membrane when the needle is withdrawn, thus preventing leakage of spinal fluid into the surrounding tissue, which is one cause of post operative headaches.

The patient should be placed on his side, with knees flexed upon abdomen and hands clasped around knees, head flexed down on the chest and supported by a pillow, and the back and hips painted with tincture of iodine. The desired interspace is easily found in this position. The skin is anesthetized with 1 per cent novocaine to a depth of one and one-half inches. Any one of the lumbar interspaces, up to the tenth dorsal, may be used, depending upon the height of anesthesia desired. The next step is to inject 1 to 1/1000 solution of adrenalin, 1 mm. to each 15 pounds of body weight, not to exceed 15 mm., deeply into the gluteal muscle. Dr. Pitkin uses ephedrin sulphate in an ampule of 1 per cent novocaine, to make a wheel over the area where the spinal needle is to be inserted. The adrenalin begins to act within two to five minutes, and raises the blood pressure from 10 to 30 mm. and the effect lasts from twenty-five to thirty minutes. It has been found that if there is to be a sudden drop of blood pressure and collapse, due to sudden interruption of nerve impulses, it will occur during the first fifteen minutes after injection of the anesthesic, thus the adrenalin provides adequate supportive treatment.

To perform the puncture, the thumb of the left hand is placed over the interspace and retracted enough to allow the needle to enter the middle of the interspace at right angles to the body. As soon as the resistance of the interspinous ligament is felt, the stilet is withdrawn and pushed through the ligament into the intradural space; there is a sudden give when the dura is penetrated, and spinal

fluid escapes through the needle. The bevel of the needle should be kept parallel to the long axis of the cord, allowing little injury to the dura, and lessening the escape of spinal fluid after the needle is removed. Unless a free flow of spinal fluid is obtained, it is best to withdraw and use the adjacent interspace. Only sufficient fluid should be withdrawn to fill the ampule and dissolve the crystals. No escape of fluid should be allowed unless using Metzes' preparation, prepared by Dr. Pitkin; then about 15 to 20 drops should be allowed to escape. Connect the syringe containing the drug, dissolved in spinal fluid, to the needle and instead of injecting, aspirate about 1 c. c. of spinal fluid, then inject 1 c. c. of mixture, again aspirate another c. c. and then inject the whole amount very slowly. This prevents too much concentration of the drug and too high extension or diffusion upward of the anesthetic. In case costal margin anesthesia is needed, 4 to 8 c. c. of spinal fluid may be aspirated and reinjected with perfect safety. After injection, the patient is turned on the back with a pillow under the head and shoulders. In case Dr. Pitkin's preparation is used, the patient must be kept in slight Trendelenberg position for a period of thirty minutes.

During the operation, close watch must be kept on the pulse, color, respiration, and the blood pressure, as all of these are important guides to the condition of the patient. The operation can start immediately after the injection. The patient will first complain of a feeling of warmth, then of heaviness in the lower extremities and the sense of pain comes last. The following symptoms may appear: A feeling of general malaise or uneasiness, slight cramps or tired feeling in legs, sensation of heat or cold through the body a feeling of pressure or heaviness on the epigastrium, slight thirst or air hunger, increase in perspiration or salivation, slight nausea.

In case the last four symptoms appear, have the patient take deep breaths through the mouth and administer 15 to 30 drops of aromatic spirits of ammonia. Place cold towels to forehead and give cracked ice by mouth. As stated previously, the critical period of spinal anesthesia is ten or fifteen minutes after injection, and the patient should not be moved during this period. After this period the patient may be placed in any position desired by the surgeon. Complication may arise during this first fifteen-minute period, such as sudden complete collapse, accompanied by symptoms such as nausea, vomiting, pallor, thirst, air hunger, cold sweats, rapid drop in blood pressure below 20 mm., slowing of pulse or respiration, loss of consciousness, and lastly paralysis of respiration, blocking of the whole sympathetic system, and rapid collection of blood in the great splanchnic pool. To understand the physiology of these accidents lessens the anxiety of the surgeon and gives him more confidence in restoring his patient. Just what has happened? The anesthesia has extended too high, and blocked all nerve impulses from vital centers. The anesthesia must reach the third to fifth cervical, which is the nerve supply to the diaphragm before respirations cease, and there is absolutely no occasion for any spinal anesthesia to be permitted to reach this height.

The works of Dr. Wayne Babcock and others have made it possible to carry a patient through this period of collapse with the assurance that within a few minutes the effect of the drug will wear off and the sympathetic fibres will regain normal control.

When such accidents occur, place the patient in a Trendelenburg position; force exaggerated breathing, give 10 mm. of adrenalin intermuscularly, unless blood pressure is below 20 mm., giving intravenous solution, using 100 c. c. normal salt for each drop of adrenalin. In case of signs of respiratory failure pull up the lower jaw and start artificial respiration. In case of cardiac failure, give adrenalin intraventricularly 0.5 to 2 min. and cardiac massage accompanied by artificial respiration.

Post operative meningitis and headache

The symptoms of meningitis are pains along the spine, stiff neck, photophobia and nervousness. The most common cause is injury to the dura, due to the use of too large a needle, or from having to make several punctures before entering the spinal canal. This condition is very rare and symptoms are

usually mild and disappear within six to ten days. If severe headache is present, draw off ten to twenty drops of spinal fluid. Persistent headache following spinal anesthesia is the most annoying complication. These headaches have a definite cause and can be prevented in 95 per cent of the cases, and when they do occur they can be quickly relieved. As a rule these headaches appear during the first twenty-four hours after the operation.

The following precautions are suggested for the prevention of post operative headaches following spinal anesthesia:

(1) Keep the patient perfectly quiet while the needle is being inserted. This will keep the needle from tearing a slit in the dura; (2) use a small spinal needle in order to lessen trauma; (3) keep the patient in the Trendelenberg position for twenty-four hours after the operation; (4) allow no stimulation or excitement; (5) surgical pituitrin or ephedrine may be given, if needed; (6) intravenous saline injection may be given in case the headache lasts over forty-eight hours; (7) do not do spinal puncture to relieve pressure unless the symptoms of meningitis are present.

The complications of spinal anesthesia have been briefly discussed, not for the purpose of creating fear in the surgeon, but to show that severe complications can be met and safely combated. Dr. Wayne Babcock estimates that under proper precautions and perfect technique, one out of ten thousand cases collapse or die due to spinal anesthesia, where proper selection of cases has been made.

Summary

In this day of rapid progress along all lines of endeavor, spinal anesthesia has been developed to a point of safety, and is an anesthesia that will not give troublesome after effects such as nausea, vomiting, gas distention, acute dilation of the stomach, shock, acidosis, pleurisy, pneumonia, as inhalation anesthesia does give.

The surgeon ten years from today (and perhaps much sooner) who is not a master of the technique of spinal anesthesia is not going to enjoy that good following his competitor has. It is the duty of every surgeon to first consider the welfare and comfort of his patient, and spinal anesthesia is without a doubt the anesthesia of choice so far as comfort for the patient is concerned.

It is my understanding that Drs. Deaver Frank Labhac, and Cryle are using spinal anesthesia in about 85 per cent of all operations below the umbilicus.

Dr. Wayne Babcock in a recent article makes the following statement: "90 per cent of the more serious operations below the diaphragm are done under spinal anesthesia, and in a number of instances in which ether had previously been tried and abandoned because of the alarming symptoms produced, the results of spinal anesthesia have been very successful. In acute abdominal infections, spinal anesthesia is unsurpassed. Nothing acts so quickly or gives such perfect relaxation of the abdominal wall, with as little protoplasmic disturbance. Thus the operation may be performed with celerity, and the minimum of functional disturbance so important in peritonitis, with the associated stimulation of peristalsis and paralysis of the sphincter relieves tympany and may cause the colon to be emptied during the operation."

Putting vitamin D into the cow

Dr. H. Steenbock, E. B. Hart and Flora Hanning, working at the Wisconsin Agricultural Experimental Station at Madison, find that irradiated yeast is far superior to cod liver oil for making cow's milk anti-rachitic.

Cod-liver oil, when fed to cows in large amounts, lowered the secretion of butter fats. Fed in small amounts, it produced little, if any, effect on the vitamin D content of the milk. The best results were obtained from irradiated yeast. Two hundred grams were fed daily to the cattle which produced thirty to forty pounds of milk of a greatly increased vitamin D content.

A diet of only fifty grams of the yeast gave milk sufficiently rich in vitamin D. The vitamin D content can be controlled by feeding a standardized yeast preparation in accordance with the milk production. Our dairies will soon be required to maintain a standard of vitamin D content as well as of butter fat.

THE PRESENT STATUS OF SPINAL ANESTHESIA*

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The literature continues to be filled with large series of spinal anesthesias from surgical clinics here and abroad. A review of each series shows the safety with which this anesthesia can be used in operations below the diaphragm. Dr. Faber and I have used this anesthesia at the Colorado General Hospital, Denver General Hospital, and in private practice in over five hundred cases and feel enthusiastically convinced of its efficacy. But in order that those whose experience has been limited may not through carelessness or errors in technique become disappointed with this mode of anesthesia, we aim to point out a few of the possible complications and pitfalls that may be encountered. The indications and contraindications will be discussed in the following paper.

The author's pre-operative preparation consists in giving barbital grs. 10 the night before operation, thus securing for the patient a good night's sleep as well as providing an antidote (Martin's[1]) should the patient be sensitive to novocaine. One-half hour before operation morphine grs. 1/6 and atropine grs. 1/150 are given subcutaneously.

The patient is placed in the lateral prone position for the spinal puncture. An assistant secures good flexion of the trunk by approximating the head and knees. The sitting position is used whenever there is a deformity of the spine or extreme obesity.

The lumbar region is painted with iodine and alcohol. Sterile towels are then placed around the area, and the crests of the ilium are palpated. An imaginary line between the superior part of both iliac crests crosses the spinal column between the fourth and fifth lumbar vertebrae.

The site of injection may be (a) between the second and third lumbar for operations above the umbilicus; (b) between the third and fourth lumbar vertebrae for operations below the umbilicus; and (c) between the fourth and fifth lumbar vertebrae for operations on the perineum and lower extremities.

Novocaine crystals (Metz) Neocaine and Spinocaine are the drugs that are most commonly used.

Novocaine crystals are prepared in ampoules containing dosages of 0.1 grms., 0.15 grms. and 0.2 grms.

For operations of less than one hour duration 0.1 grms. to 0.15 grms. should be sufficient. For operations over one hour the dosage should be 0.2 grms.

The needle is introduced into the subarachnoid space which is at a depth of 4.5 to 5 cm. The stylet is withdrawn and cerebrospinal fluid is allowed to flow into the ampoule containing the crystals. The amount of spinal fluid to be withdrawn will vary with different regions.

For operations below the umbilicus 4 c.c. of spinal fluid will be sufficient. For operations above the umbilicus 6 c.c. to 8 c.c. of spinal fluid will be necessary.

After the novocaine is dissolved in the spinal fluid it is slowly reinjected into the subarachnoid space.

The patient is then placed in the Trendelenburg position and the operative field is prepared. Anesthesia is complete in approximately five minutes.

My own preference is for Spinocaine, which I have been using in most of my cases. This solution was devised by Dr. Pitkin in 1927, and consists of 200 mgs. of novocain, 2.2 mgs. of strychnine sulphate in a special solvent consisting of 14.5 per cent alcohol and sterile water, with the addition of gliadin (amylo-prolamin combination). It is supplied in 2 c.c. ampoules.

The claim for this solution is that it makes controllable spinal anesthesia possible. Being of lower specific gravity and of a viscous consistency that prevents diffusion, it floats upon the spinal fluid like the air bubble of a spirit level. 2 c.c. of Spinocain expanded to 4 c.c. of spinal fluid will produce anesthesia below the umbilicus for 60 to 90 minutes. If the proposed operation is

*Read, jointly with the next following paper, before the Sixtieth Annual Session, Colorado State Medical Society, Pueblo, Colo., Sept. 9-11, 1930.

expected to last longer we use 4 c.c. of Spinocain which will give good anesthesia for two hours. Spinocain 4 c.c. expanded to 8 c.c. of spinal fluid will give good anesthesia for any surgical procedure below the diaphragm. The patient is placed in the Trendelenburg position as soon as the injection is completed. Ephedrine grs. 0.75 is used routinely before the injection is made. Although there is still much debate as to its value in maintaining blood pressure (Labat[3]) I can see no harm in giving it. The blood pressure is taken before the anesthetic is given and at intervals throughout the operation. Many authorities claim this a useless procedure, but I feel much safer if I can keep a constant watch over it. If the pressure falls below 70 mm. I repeat the ephedrine and if this does not stop the falling pressure, I do not hesitate to give an intravenous saline-adrenalin infusion.

Satisfactory analgesia can be obtained in practically every case for operations below the diaphragm. Failures to obtain it must be attributed mainly to faulty technique when the usual dose is used. The intraspinal injection is a very delicate procedure, contrary to statements that "any one who can do a spinal puncture can give spinal anesthesia." A slight alteration in the position of the needle may mean that its point is outside the canal, and that the injection or part of it is being made extradurally. This is the principal cause of failure in practically all partial or unsuccessful anesthesias. Most of the objections to spinal anesthesia are based on the fatalities and bad after effects that were encountered from toxic drugs, when this form of anesthesia was a new and little known procedure. The preparation of novocain has given us a perfectly safe drug which can be used in large doses with reasonable safety. Rugh and Bessesen[4] collected a list of 250,000 administrations from the literature with 75 deaths, they conclude that the mortality from spinal anesthesia has been due to faulty technique, toxic drugs, overdosages and misunderstanding of the physiology.

I am very much impressed with the value of giving oxygen or a mixture of oxygen and carbon dioxide to patients in whom untoward reactions develop.

In conclusion I feel that spinal anesthesia is perfectly safe for any surgical lesion below the diaphragm. It should be employed by a skilled person who has had experience in performing a spinal puncture. Supervision of the patient should be as close as if ether were being administered.

REFERENCES

[1]Martin, E. G.: J. A. M. A. 91:555 (August 25) 1929.
[2]Koster: Journal Surgery, 8:970 (May) 1930.
[3]Labat, L. G.: Surgical Clinics N. A., Vol. 10, No. 3.
[4]Rugh and Bessesen: Minnesota Medicine (Nov.) 1928.
[5]Schattenburg, O. L.: Calif. & Western Med. 11:615 (Dec.) 1928.
[6]DeCourcy, J. L.: Ohio State Med. 26:397 (May) 1930.
[7]Lundy, J. S.: Minn. Med. 13:223 (April) 1930

GENERAL CONSIDERATIONS OF SPINAL ANESTHESIA*

EDWIN G. FABER, M.D.
DENVER

For the past few years the literature has been filled with articles reporting large numbers of surgical cases in which spinal anesthesia has been used. The object of these articles seems to be to convince the profession of the safety of this measure, and of the simplicity of the technique. Few articles have pointed out the dangers of spinal anesthesia and the difficulties in the technique.

I wish to consider the subject from the angle of its indications, contra-indications and its relative dangers compared to other types of anesthesia.

In the previous paper you have heard a discussion of the technique employed in inducing anesthesia. Although the procedure seems simple, I assure you that it is similar to all other surgical procedures. It requires strict adherence to the principle laid down and sufficient personal experience to avoid the numerous pitfalls into which one may fall. Solutions lighter than spinal fluid I

†Read, jointly with the next preceding paper, before the Sixtieth Annual Session, Colorado State Medical Society, Pueblo, Colo., Sept. 9-11, 1930.

believe are the most satisfactory agents, although their use requires more careful technique. The anesthesia produced is more easily controlled as to height which, in my opinion, is important. Although Koster[1] has apparently proved that medullary block is no danger of high spinal anesthesia, nevertheless anesthesia far above the area to be operated is of no value and undoubtedly increases the risk. For example, anesthesia above the umbilicus for a herniotomy is unnecessary and appears to me to be in the same category as deep ether anesthesia where light anesthesia will suffice.

Spinal anesthesia may be used safely and satisfactorily in all surgery below the diaphragm. It has been used successfully for much higher work, but I do not see the advantage of its use for surgery above the diaphragm except under unusual circumstances. The advantages are complete relaxation of the patient in the anesthetized area. Those of you who have operated with spinal anesthesia appreciate this relaxation. This is particularly advantageous in closed and open reduction of fractures of the lower extremities, rectal and genito-urinary, and abdominal surgery. Its value in intestinal obstruction has been called to your attention on numerous occasions not only as an anesthetic but as a diagnostic and therapeutic agent.

In this connection I wish to quote from W. J. Mayo[2]:

> Spinal anesthesia has the great advantage in cases of probable intestinal obstruction that if no true mechanical obstruction exists, gas and perhaps intestinal contents will pass by rectum within fifteen to twenty minutes. Therefore if gas and intestinal contents are not passed after a spinal anesthetic has been administered mechanical obstruction may be assumed to be present and advantage can be taken of the anesthesia for immediate operation.

The value of spinal anesthesia in the tuberculous patient is well known and is of particular interest to the surgeons in this state. Most internists fear inhalation anesthesia for patients with pulmonary tuberculosis and many of you can cite cases where the pulmonary lesion has progressed rapidly after ether or nitrous oxide anesthesia. The latter is used most frequently for tuberculous patients and has the added disadvantage of making abdominal surgery difficult because of the inability to obtain proper muscular relaxation.

In diabetes mellitus inhalation anesthesia, particularly ether, is definitely contra-indicated. Draper[3] after careful studies of the acidosis of ether anesthesia states: "ether is strongly contra-indicated in diabetes." Spinal anesthesia gives uniformly good results in major surgery in the diabetic patient without the dangers attendant upon inhalation anesthesia.

The dangers of spinal anesthesia may be divided into two classes: firstly those that arise from faulty technique or pre-operative preparation; secondly, those due to the patient's reaction after induction. Novocaine poisoning must always be considered and guarded against. This complication occurs very soon after the injection of the anesthetic agent into the spinal canal and before anesthesia is established and is evidenced by convulsive movements and respiratory failure. This may be avoided by proper preoperative preparation. Martin[4] has shown that barbital will protect dogs from poisoning where large amounts of novocaine were injected into them. This principle is applied and the patient given barbital the night preceding and one hour before operating. When the patient is vomiting, soluble barbital preparations are injected an hour before the administration of the anesthetic. The only death which I have had which could be attributed to spinal anesthesia was due to novocaine poisoning. In another case there was a severe reaction with respiratory failure which did not result fatally. Neither of these cases had been prepared with barbital preoperatively. The important technical precaution to prevent novocaine poisoning is to be sure not to inject the anesthetic where the spinal puncture brings bloody fluid.

The drop in blood pressure which has been so much discussed is of no importance as long as the patient's head is lower than the rest of the body to prevent cerebral anemia. The use of ephedrine or adrenalin to prevent this drop has been discontinued by many men because of the logical explanation of its effect by Labat.[5] In the average case the drop in blood pressure is not great as is evi-

denced by the accompanying composite graph of blood pressures in twenty-two consecutive cases operated at Denver General Hospital. Although the number of this series is very small it demonstrates that blood pressure readings, in the absence of other danger signals, is of no importance.

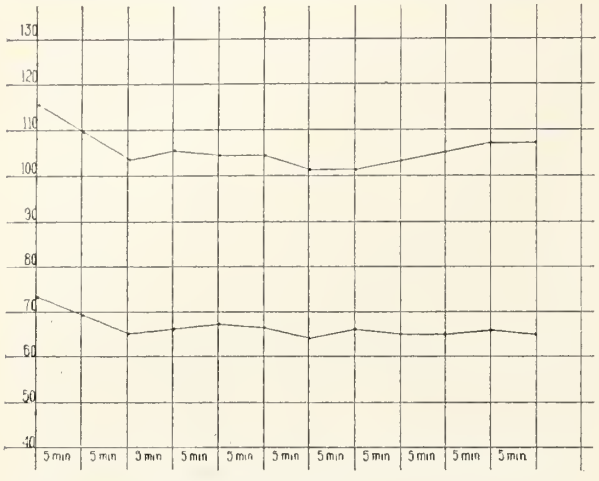


Fig 1. Composite graph of blood pressure readings during spinal anesthesia.

The danger of cord irritation and post-operative disturbances has been considered. With the exception of post-operative headache which is readily controlled by medication there have been no cases presenting any post-operative evidence of disturbances which could be attributed to the anesthetic. It will be interesting to note the record of spinal fluid findings before and after spinal anesthesia. Although the cases are too few to draw any conclusions, yet it will be noted that the majority show some evidence of irritation by the increase in the cell count. These patients, however, showed no clinical evidence of this irritation.

The most important contra-indications to spinal anesthesia, with the exception of spinal cord or cerebral disease, are advanced myocarditis or myocardosis. If the heart is unable to adjust itself to the marked change in circulation, due to the dilatation of the splanchnic vessels, one may anticipate difficulties and, although the patient may show little evidence of incompetency during the operation, frequently there will be heart failure twenty-four to forty-eight hours post-operatively.

Highly nervous and apprehensive individuals are poor subjects for any block anes-

Patient	Cell count		Globulin		Sugar		Remarks
	Before	After	Before	After	Before	After	
B.B.	3	36	0	+ + +	+	+ + +	No headache.
F.M.	9	14	+ +	+	+ +	+ +	No headache.
I.B.	3	7	+	+	+	+ +	Backache for 2 days
E.C.	3	5	+	+	+ +	+ +	No headache.
W.C.	4	9	0	+	+	+	No headache.
M.D.	18	10	+	+	+ +	+	No headache.
A.H.	6	10	+	+	+ +	QNS.	No headache.
R.P.	1	9		0		+	No headache.
F.S.	42	10	+	0	+	+	No headache.
C.A.	5	3	0	0	+	0	No headache.
E.S.	7	15	+	+	+ +	+	No headache.
C.P.	5	40	+		+ +		Severe headache.
C.C.	10	22	0	0	+	+	No headache.
O.W.	7	10	+	+ +	+ +	+ + +	No headache.

Fig. 2. Table of spinal fluid findings before and twenty-four hours following spinal anesthesia.

thesia. Spinal anesthesia is contra-indicated in this type of patient because of difficulty of management of the patient during the operation and the possibility of post-operative neuroses.

In conclusion I wish to emphasize the fact that spinal anesthesia is not the procedure of choice in all cases. It must be considered, however, and selected in cases where it is indicated. It is my belief that no anesthetic agent should be routinely used, but that the anesthetist should be equipped to administer all types of anesthesia. Consultation between the surgeon and the anesthetist should be had on all unusual cases and the most suitable anesthetic agreed upon. Unquestionably if this procedure were followed the quality of anesthesia would be greatly improved.

REFERENCES

[1]Koster, H. and Kasman, L. P.: Spinal anesthesia for head, neck and thorax; its relation to respiratory paralysis, Surg. Gyn. & Obs. 49:617 (Nov.) 1929.

[2]Mayo: Surg. Gyn. & Obs. Vol. 1, 1930.

[3]Draper, W. B.: Acidosis of ether anesthesia, Colo. Med. 27:202 (June) 1930.

[4]Martin, E. G.: Local anesthesia agents; preventive and emergency treatment of toxicity with especial reference to harbituric and derivatives, J. A. M. A. 91:555 (Aug. 25) 1928.

[5]Labat, L. G.: Surg. Clinics. N. A. Vol. 10, No. 3.

DISCUSSION

William Spitzer, Denver: I do not think a paper on spinal anesthesia should be permitted to pass without discussion. Spinal anesthesia is becoming much more practical for the reason that it is a great aid to the general surgeon. Abdominal operations under this anesthesia can be performed in half the time and with half the trouble to the surgeon; much less damage will be done to the patient, and therefore the mortality is markedly reduced. John B. Deaver, of Philadelphia, informs us that the mortality of appendectomy, in particu-

lar, as well as that of other abdominal operation, has been considerably lowered by its use. Furthermore, this anesthesia does not reduce the function of the kidney, but on the contrary, increases such function because of the dilatation of the renal vessels. The secretion of the kidney is increased, an observation made by cystoscopists, and this is not true of any other anesthesia. The reason for this is that the white rami communicantes, the vaso constrictor nerve supply to the blood vessels is paralyzed permitting of the dilatation of such vessels, and thus the increased function of the kidney.

This paralysis of the abdominal sympathetic innervation is the only drawback to this form of anesthesia, as all other blood vessels, from the uppermost point of anesthesia to the end of the toes are also dilated. This dilatation means shock, these vessels filling, with a natural decrease of blood supply to the upper or un-anesthetized portion of the body. Thus it may be seen, that the blood supply to the brain is lessened, anaemia of the brain results, and it is this anaemia of the brain that gives rise to all the symptoms which follow. Such symptoms are pallor, sweating, shallow respiration, vomiting, dilatation of the pupils, and marked drop in blood pressure; in other words, the typical picture of shock. As Gaston Labat has suggested, all stimulants, particularly ephedrin are contra-indicated now, as they constrict the vessels of the un-anesthetized areas still more and pump still more blood into these already dilated vessels, thus increasing the anaemia of the brain. His suggestion is to increase the blood supply in the brain by placing the patient in the Trendelenberg position, the only means at our command to overcome this anaemia. Spinal anesthesia should be given, as both essayists have pointed out, for operations below the navel only.

As to the choice of drug, novocain mixed with spinal fluid is advocated by Labat for the reason that the drug must be disseminated in the sub-arachnoid space in order to obtain anesthesia. Spinocain, as suggested by Pitkin, must also be disseminated or anesthesia will not be obtained, and no advantage accrues from this mixture of drugs known as spinocain, which theoretically does not mix with the spinal fluid. As stated above, if it did not so mix, there would be no anesthesia. The idea of Pitkin is not new, having been tried before, when we used a lighter than spinal fluid anesthetic mixed with alcohol, and a heavier than spinal fluid anesthetic mixed with sugar, with the same idea of confining the drug to a given area, within the sub-arachnoid space. Mixed with alcohol the patient was placed in a Trendelenberg position, in order that the fluid should remain in the lower portion of the spinal canal, and this had its advantage in that it overcame the anaemia of the brain. Gradually those who practice spinal anesthesia are returning to the use of unadulterated novocain mixed with spinal fluid.

It is my belief that novocain poisoning, per se, is never the cause of the untoward symptoms, first because the drug does not when introduced in the spinal canal enter the circulation and second because the dosage is never above 2 decigrams, and 1 gram of the drug is not toxic, if not introduced rapidly into the blood stream.

Again, always Trendelenberg the patient, and if he be not in good condition when the operation is finished, he should be carried to bed in the Trendelenberg position, the foot of the bed should be elevated, and this position maintained for at least two or three hours.

PUBLIC HEALTH NOTES

EDITOR J. W. AMESSE, M.D.

American Public Health Association

Emphasis on the economic value of public health work and upon the need for evaluation of progress and results obtained appeared in all the general and sectional meetings of the American Public Health Association, which held its Fifty-ninth Annual Convention at Fort Worth, Texas, October 27 to 31.

Child Health work and prevention held the center of the stage at most of the meetings, which were attended by 1,500 delegates, not only from all parts of the United States, but from many foreign countries as well.

Among those especially honored were Dr. Rafael Silva, Chief of the National Department of Health of Mexico, and Dr. Aristides Agramonte who was one of the outstanding heroes who permitted himself to be bitten by the mosquito to prove that the insect is a carrier of yellow fever.

Reports given covered many phases of public health work, including organization and advancement of work in remedying child disease problems, efforts to bring about the more accurate keeping of vital statistics both in rural sections and in cities, and the latest information in connection with the control of epidemics of typhoid and other diseases. "Rural districts cannot be expected to pay as much as cities for the service of health departments," said Dr. Winslow of Yale University, "but inasmuch as the life of a person outside of a city is worth just as much as that of a city dweller, provision for protective measures in farm communities must be made."

Progress of a survey completed by the Committee on Administrative Practice of the American Public Health Association in fifty counties showing the advantages offered by health organization as compared to the disadvantages of unorganized methods, was reported by Dr. Bishop of the Health Department of the State of Tennessee.

The Inter-city Health Conservation Contest which is being promoted by the Chamber of Commerce of the United States, assisted by the Committee on Administrative Practice of the American Public Health Association, attracted considerable attention. There are already 183 entrants in the 1930 contest as against 108 entrants in the 1929 contest.

Relationships between and functions of the United States Public Health Service, State Health Departments, and local Health Departments were discussed.

One of the most interesting sessions of the conference was that on the inter-relation of the health officer and general practitioner to preventive medicine.

The permanent objective of the A. P. H. A. as laid down by its executive board is the effective control of preventable disease, and the security of health for all the people.

The first necessity to attain this objective is:

A full-time health service with trained personnel for every community, and provision of adequate public funds for its support.

The first fruits of such organization and support of public health knowledge and resources will be:

1. Reduction of the maternal mortality rates so that the United States and Canada will be second to no nation in the safety of motherhood.
2. Securing normal growth of body and mind for children, and their training in the laws and personal practices of a healthy life.
3. Protection of life and limb and promotion of health for the working man and woman.
4. An adequate supply of safe milk for every community.
5. An adequate supply of pure water for every community.
6. Elimination of tuberculosis, malaria, hook-worm disease, typhoid fever, diphtheria and smallpox, among the communicable diseases of which we have sufficient knowledge.

The American Public Health Association has pledged to the health workers of the country and to the people of our member nations vigorous co-operation in carrying these projects to a successful conclusion.

The president of the Fifty-ninth Annual Conference of the American Public Health Association was Dr. A. J. Chesley, State Health Officer of Minnesota. Dr. Hugh S. Cumming, Surgeon-General of the U. S. Public Health Service, is the newly elected president for 1931, and the annual session meeting will be held in Montreal.

Surgeon-General H. S. Cumming is also director of the Pan American Sanitary Bureau and was recently made an honorary member of the National Academy of Medicine of Mexico, located in Mexico City.

In October, 1927, Dr. Cumming received a similar honor from the National Academy of Medicine of Peru, and he has lately been made an officer of the Order of Finlay, of Cuba.

The duty of health education

In a recent paper read before the Illinois State Medical Society, Camp discusses the relation between the health department and the practicing physician. It is only through complete and continuous co-operation, each being dependent on the other, that satisfactory results obtain. These agencies should work together to make the public dissatisfied with prevailing health conditions and thus arouse a desire to improve them. To accomplish this we must have a definite and concrete program showing indubitable evidence that our economic losses through sickness and death are much greater than they should be. The prompt reporting of contagious diseases and of births and deaths will insure a broad grasp of health conditions in a given community. There are too many rural health officers who believe their functions are completed when they nail up a quarantine card. The necessity for a publicity department in every municipal health office is obvious; a physician may not warn or advise publicly but the health department can do this without violation of any ethical principle.

The lowest infant mortality rate

"The crude death rate of a town, city, state, or country is not a reliable yard-stick for comparing the health conditions of vari-

ous communities. A much more reliable index of sanitary progress in a community is the infant death rate," say Drs. William H. Guilfoy and Shirley W. Wynne of New York, authorities on vital statistics.

Based upon this statement, St. Louis may well be proud of her health record in 1929, for the report of Dr. Max C. Starkloff, health Commission of St. Louis, to Director of Public Welfare Salisbury, shows the infant mortality rate in St. Louis was the lowest among the larger United States cities. The rate shows that only 57.2 of every 1,000 children born last year died during the first year of life, this is within .9 of the lowest infant death rate ever recorded in St. Louis, and 4.4 lower than that of 1928. The city ranking next lowest is New York with a death rate of 58.5. Chicago comes third with a rate of 60, and Pittsburgh has the highest rate in this group of cities with a rate of 75.8.

The total number of deaths for all ages reported in St. Louis last year was 11,913, of which 10,958 were residents of the city. The death rate was 13.9 per 1,000 as compared with 14.2 in 1928.

LIBRARY NOTES

"A Library Is a Summons to Scholarship"

EDITOR J. J. WARING, M.D.

About 1915, Dr. Charles Singer persuaded Bodley's Librarian and the Curators to set apart a special room for research work in the history and method of science. With Mrs. Singer he further offered five hundred dollars annually for five years to provide certain necessary fittings for the room and special books not in the library. As a result of the labors of a few Oxford students, a first volume of essays appeared in 1917 and was devoted to studies in medical science. The second volume, now in hand[1], consists of fifteen essays, two of which are by Charles Singer himself, nearly all of which relate to the evaluation of the mathematical and exact sciences. Both volumes are now out of print.

[1]Studies in the History and Method of Science, Edited by Charles Singer, 2nd vol., only, Oxford, Clarendon Press, 1921.

In the absence of our valued librarian, Miss Minnie Goehring, who has been ill for some months, active charge of the library has been in the hands of Miss Corabel Tyndall.

For some time, the editor of this column has been on the watch for a short quotation to carry regularly at the head of Library Notes. A satisfactory line has turned up! Flanking the doorway of the great new Sterling Library at Yale University are the following two inscriptions: "A Library is a Summons to Scholarship" and "The Library is the Heart of the University." The former is appropriated!

The best doctor is not inevitably the man who spends the most time in the library or borrows the most books, nor yet is the worst doctor the man who spends the least time within its doors. Many a "noble laborer in God's vineyard" rarely sees the inside of a medical library. Great interest in research and little in practice will cause a man to turn his footsteps often toward the portals which stand open invitingly in the Metropolitan Building. However, even the man who races from morning to night to cover his rounds in the hospital wards and his private calls without, may find an occasional visit to the library profitable. Besides being a summons to scholarship a medical library is by way of being a challenge to the profession.

BOOK REVIEWS

"Recent Advances in Hematology." By A. Piney, M.D., 2nd ed., Philadelphia, four colored plates and eighteen other illustrations, P. Blakiston's Son and Company, 1928, Pp. 318.

This little book may be considered a post-graduate work on hematology. It may be read profitably after first reading Clough's work of similar size. So much that is controversial is considered, that the reader is somewhat bewildered by profuse citations of conflicting opinions; however, it contains much that is worth while. The chapter on "Leukemoid Blood Pictures" is excellent. Every chapter carries an appended bibliography and the appendix includes a list of over one hundred text-books and monographs on hematological subjects, with very brief critical notes of each. The color plates are as good as the best. JAMES J. WARING.

(Continued on Page LVI, Advertising Section)

Secretarial Notes and Comment

Edited by Harvey T. Sethman, Executive Secretary

TRANSACTIONS OF THE SIXTIETH ANNUAL SESSION

MINUTES of any Annual Session of the Colorado State Medical Society are important, not only as the written permanent record of the meeting, but as the only means of laying before the entire scattered membership the business transacted.

Minutes of the 1929, or fifty-ninth, Annual Session were characterized at that time as the most important ever published, because they constituted an exposition of the new venture of an Executive Office and an Executive Secretaryship, a new highway over which the Society had elected to travel.

But how can the records of this year's meeting be less important, since they display the results accomplished in the first year of the new venture? Much that has been accomplished, many problems that have presented themselves could not appear regularly in Colorado Medicine. They would have appeared disjointed, unrelated to the whole of the program.

Here, then, in this issue, is the complete history of a critical year, a year wherein the way was at times felt gingerly, wherein at times bold strokes were made. Those who wondered whether after all the new plan was sound and worth the added expense may now read the record and decide for themselves.

ELECTION RESULTS

LEGISLATORS who convene at the State Capitol January 7 will differ in at least one respect from all predecessors. Each and every one will know that the medical profession of Colorado is watching his work, is his friendly advisor on matters of public health legislation, and wields a hitherto unappreciated power in elections.

Activities of our Society in the November election may have been quiet and more or less unannounced. They may have been new to us. They were none the less productive of results, both direct and indirect.

An analysis of the vote shows plainly enough even to the most prejudiced politician that the medical profession held the necessary balance of power to elect the profession's choice to the office of lieutenant governor, presiding officer of the State Senate. This was the only contest taking a state-wide vote wherein our Society took a definite stand in favor of one candidate.

Results are less easily analyzed in the cases of individual members chosen for the senate and the house. To speak in generalities, the medical profession won in the thickly populated counties and either broke even or lost in the sparsely settled communities. There are exceptions, of course, in some districts. The final complexion of the legislature in regard to its medical attitude cannot be given accurately at the time this is written. Contests were so close in many districts that unofficial newspaper counts are not to be relied upon. The final results will be known about December 1.

Our legislative campaign is not finished. It has hardly begun. Members generally and county society officers particularly should watch for developments both through Colorado Medicine and through individual letters and bulletins. Your help will be needed and will be asked. Upon your response will depend the success of the campaign.

THE CHICAGO CONFERENCE

STATE MEDICAL SOCIETY secretaries and journal editors, Colorado no exception, have just returned from their annual pilgrimage to Chicago freshened in spirit, revitalized in energy, and more than ever impressed with the potential value of their offices and with the latent power of organized medicine.

The occasion was the Annual Conference of Secretaries and Editors of Constituent State Medical Associations, the two-day meeting called each November by the American Medical Association. Dr. J. Rosslyn Earp, Scientific Editor of Colorado Medicine, and Mr. Harvey T. Sethman, Executive Secretary, represented Colorado at the meeting.

The words 'potential value" and "latent power" were used advisedly. Papers and discussions at the meeting convinced the Colorado secretary that state secretarial offices and state journals generally are not as valuable to the profession as they should be. Lack of use of secretarial facilities, lack of careful reading of journals, are the immediate causes. Underlying causes undoubtedly are found in failure of state officers, secretaries, editors, and committees to convince the profession of the worth of these offices and facilities.

Emphasized as it has been in recent years, too much emphasis cannot be laid on the position which the county medical society occupies in or-

ganized medicine. Ninety-nine per cent of the medical profession's problems can be solved by the individual county medical societies, and can be solved by no other individual or organization. The dangers of state medicine, the difficulties of contract practice and industrial medicine, the ever-present problem of medical service for the indigent; all these and more are questions that in the end must be studied and answered alone by the county medical society.

If the Executive Secretary has a message for the Colorado profession from the Chicago conference, that is the message.

Naturally, a foundation must be laid before a single brick can be set in place. The county secretary is surely the corner stone of the county medical society. This is not just a Colorado situation, it is national. In the last two years about half of the Colorado county societies have fortunately had secretaries fully awake to their duties and privileges. If the remaining societies will find similar men and women for these positions, Colorado may well lead the country in purposeful county society work.

Adequate discussion here of the program presented at Chicago would be impossible. All transactions will be published within the next few months in the American Medical Association Bulletin, available to all our members.

LIABILITY INSURANCE BROADENED

LAST month arrangements were announced whereby a master policy of physicians' liability insurance had been established so that members in the smaller county societies could have the same advantages of low premium rates as those members in the larger cities.

The Board of Trustees, at a meeting held Oct. 25 in the Executive Office, formally approved an additional master policy, this one with the United States Fidelity and Guaranty Company of Baltimore, Md.

The State Society now holds two master policies, and thus gives all members a choice between the two largest insurance companies writing this kind of insurance in Colorado, and at premium rates obtainable in no other way.

Many members already hold individual liability insurance policies with the U. S. Fidelity and Guaranty Company. It is well to call attention here to the saving effected by establishment of the master policy. The premium for the customary "basic" liability limits of $5,000—$15,000 has been $25.00 per year for an individual policy with this company. With the master policy in force the premium is now reduced to $17.50 per year.

This action of the Board of Trustees was taken in accord with a resolution of the House of Delegates at the recent annual session, giving the Board authority to approve such master policies as in its judgment would be of benefit to the members throughout the state.

Members who carry liability insurance should bear these things in mind at all times, especially at the date for renewal of their policies. Premium savings will amount to more than the State Society annual dues for those members who carry large policies.

INDUSTRIAL COMMISSION FEES

LONG and hopefully awaited, the decision of the Colorado State Industrial Commission on a revision of the medical and surgical fee schedule has been handed down.

But alas! Promises of the Commission that the profession's recommendations would be carefully considered and assurances that the profession's plea for increases would not go unheard were written on water.

Space does not permit publication here of the complete new schedule or a comparison of the new and the old. The Commission put the new schedule into effect on November 15. Copies may be had from the Commission or from the State Society's Executive Office. Suffice it to say that the Commission adopted, almost without a change, recommendations made by representatives of the large insurance companies. A few increased fees were allowed, where the insurance companies concurred with the medical profession. Notable decreases were made, especially in the x-ray schedule, again on the recommendation of the insurance companies.

It is needless to say that our Society's special committee having this matter in charge will continue the fight for a square deal for the medical profession. The fight will be carried on with redoubled vigor. If necessary the fight will be carried to the legislature. In any case, the committee will need help from individual members.

ANNUAL REPORTS

WITH the end of the year upon us, it is time to remind all officers of constituent societies, particularly the secretaries, of the need of complete and accurate annual reports.

Virtually all local societies will elect their 1931 officers in December or January. Officers should remember the requirement of the State By-Laws concerning the number of positions that must be filled. Not only should each society choose the customary executive officers, but in addition: a board of censors, delegates and alternates to the State Society, and such standing committees as each society requires.

Annual reports to the State Society should include the names of all of these, and the names of all honorary members.

SIXTIETH ANNUAL SESSION COLORADO STATE MEDICAL SOCIETY

PUEBLO, COLORADO, SEPTEMBER 9, 10, 11, 1930

PROCEEDINGS OF THE HOUSE OF DELEGATES*

MINUTES IN DETAIL

First Meeting of the House of Delegates
8:00 p. m.. Sept, 8, 1930

President William Senger: "Gentlemen, the House will please come to order. We will first listen to the report of the Committee on Credentials, by Dr. F. B. Stephenson, chairman."

(See report in full on next page.)

Dr. Stephenson supplemented the report of the Committee on Credentials by reading a letter from Dr. F. J. Blackmer, secretary of the Northwestern Colorado Medical Society, reporting the inability of that Society's delegate or alternate to serve, and announcing the appointment of Dr. Duane Turner to fill the vacancy.

The roll was called by the Executive Secretary from the report of the Committee on Credentials. There were thirty-four qualified delegates and alternates present.

The President announced a quorum present.

It was moved and seconded that the report of the Committee on Credentials be adopted.

On motion, seconded and carried, the report was amended to seat Dr. Duane Turner as the delegate from the Northwestern Colorado Medical Society.

On motion, seconded and carried, the amended report was then adopted.

On motion of Dr. Rogers, the minutes of the Fifty-Ninth Annual Session, as published in the December, 1929, issue of Colorado Medicine, were approved without reading.

President Senger: "I will now appoint the necessary reference committees for this session, as follows:

"**Reference Committee on Reports of Officers:** P. J. McHugh, chairman; G. C. Cary, W. B. Hardesty.

"**Reference Committee on Reports of Committees:** Lorenz W. Frank, chairman; W. S. Chapman, Harold T. Low.

"**Committee on Appropriations:** W. B. Yegge, chairman; E. D. Downing, H. R. McKeen.

"**Special Reference Committee on Revision of By-Laws:** C. E. Harris, chairman; Gerrit Heusinkveld, H. R. McKeen.

"**Reference Committee on Miscellaneous Business:** Donald H. O'Rourke, chairman; H. G. Garwood, R. C. Robe.

"The next order of business will be the choice of a Committee on Nominations. I will call for nominations for that committee, which must number five members, no two of them from the same constituent society."

The following names were placed in nomination for membership on the committee:

James A. Philpott, Denver.
A. C. Holland, El Paso.
G. C. Cary, Mesa.
W. S. Chapman, Huerfano.
Harold T. Low, Pueblo.

There being no further nominations, the President declared nominations closed.

On motion, seconded, and carried by unanimous rising vote, the Executive Secretary was instructed to cast a unanimous ballot for the five nominees as the members of the committee.

President Senger then called for the annual reports of officers.

Dr. F. B. Stephenson read the report of the Constitutional Secretary, as follows:

REPORT OF THE CONSTITUTIONAL SECRETARY

Your Secretary has served the past year chiefly as a trainer of your newly installed executive secretary and as a member of the Board of Trustees.

I have nothing to report that will not be covered in the report of that thorough and energetic young man, whom I commend to you as my official offspring.

F. B. STEPHENSON.

The report was ordered referred to the Reference Committee on Reports of Officers.

Mr. Harvey T. Sethman read the report of the Executive Secretary, as follows:

REPORT OF THE EXECUTIVE SECRETARY

This report will not be as lengthy as was the first annual report last year. A year ago a program for activities of the Executive Office was outlined in considerable detail. This year the office reports what we hope you will believe is a long step toward fulfillment of that program.

Since the Executive Secretary is named as secretary of all general committees, it is perhaps natural that this report will encroach slightly upon the committees in pointing out the highlights of the year's administrative work.

Following the President's request for concise reports, the detailed statistical report concerning membership and financial transactions is appended in writing for your reference committee, and only an abstract will be read.

Paid membership on Sept. 1, 1930, was 1,086. Subtracting the deaths of three paid members and the transfer of two paid members, we have an active membership of 1,081 on Sept. 1. This compares with an active membership of 1,093 on Sept. 1, 1929, a loss of twelve members.

The fear expressed a year ago that we would lose 100 or more members by the increase in membership dues was unfounded. Fourteen members who were paid and active in 1929 moved away from the state last year and therefore did not renew this year. Their failure to renew is not traceable to the increased dues, for the increase did not apply to members outside the state. With fourteen thus moving away, a loss of twelve in active membership would hardly indicate that the increase in dues has injured the Society.

Receipts for the four-month period from Sept. 1, 1929, to Dec. 31, 1929, were $1,876.47. Disbursements for the same period were $6,813.89. Receipts for the first eight months of 1930 were $15,662.50, and disbursements were $11,270.64, both figures being exclusive of transfers of funds

(Continued on Page 484)

*An index to the proceedings of the House of Delegates will be found on page 505.

REPORT OF THE COMMITTEE ON CREDENTIALS

Your Committee on Credentials begs leave to report that constituent societies are entitled to representation in this House as hereinafter listed, and that the delegates and alternates named have been issued certificates attesting thereto:

Society—	Members on Dec. 31, 1929	No. of Delegates	Delegates	Alternates
Arapahoe	7	1	W. C. Crysler	H. B. Catron
Boulder	40	2	C. W. Bixler	C. D. Bonham
			C. E. Sidwell	H. R. Dietmeier
Chaffee	6	1	C. R. Fuller	G. W. Larimer
Crowley	2	1	J. A. Hipp	S. A. Bryan
Delta	21	1	L. L. Hick	A. C. McClanahan (1st)
				Lee Bast (2nd)
Denver	583	24	Roy P. Forbes	W. W King
			Frank E. Rogers	Philip Hillkowitz
			H. R. McKeen	William T. Brinton
			Harry L. Baum	B. B. Jaffa
			Edward Delehanty	G. E. Cheley
			W. J. Robb	Philip Work
			C. J. Lowen	R. G. Smith
			Hugh L. Taylor	Craig Price
			D. H. O'Rourke	I. D. Bronfin
			H. I. Barnard	P. W. Whiteley
			Gerritt Heusinkveld	Edward F. Dean
			H. S. Finney	G. A. Moleen
			C. F. Kemper	W. W. Haggart
			James A. Philpott	S. D. Van Meter
			J. S. Bouslog	T. D. Cunningham
			E. G. Faber	G. W. Miel
			W. C. Finnoff	H. W. Wilcox
			Lorenz W. Frank	W. M. Bane
			James M. Shields	Claude E. Cooper
			C. H. Darrow	L. G. Crosby
			W. R. Waggenner	J. M. Foster, Jr.
			W. B. Yegge	C. F. Hegner
			Maurice Katzman	J. G. Ryan
			H. G. Garwood	W. S. Dennis
El Paso	103	5	E. D. Downing	G. B. Gilbert
			F. L. Dennis	T. R. Knowles
			C. E. Harris	P. O. Hanford
			A. C. Holland	
			Z. H. McClanahan	H. W. Woodward
Fremont	19	1	V. A. Hutton	J. D. Hinshaw
Garfield	14	1	R. B. Porter	W. R. Tubbs
Huerfano	13	1	W. S. Chapman	P. G. Mathews
Kit Carson	6	1	W. L. McBride	H. L. Williams
Lake	5	1	F. N. Cochems	A. J. Bender
Larimer	31	2	P. J. McHugh	S. A. Joslyn
			W. B. Hardesty	T. C. Taylor
Las Animas	19	1	B. B. Beshoar	James G. Espey
Mesa	18	1	G. C. Cary	C. W. Reed
Montrose	7	1	C. G. Brethouwer	C. E. Lockwood
Morgan	12	1	H. M. Hawthorne	F. W. Lockwood
Northeast	21	1	J. W. Kinzie	W. E. Hays
Northwestern	12	1	B. M. Bailey	E. M. Morrow
Otero	26	2	R. S. Johnston	B. Franklin Blotz
			Ward C. Fenton	J. R. Gaines
Prowers	17	1	N. M. Burnett	R. J. Rummell
Pueblo	69	3	Harold T. Low	C. N. Caldwell
			R. C. Robe	George P. Pipkin
			George M. Myers	George E. Rice
San Juan	22	1	A. L. Burnett	B. F. Walters
San Luis Valley	22	1	L. L. Harriman	J. R. Hurley
Weld	40	2	H. W. Averill	O. F. Broman
			E. W. Knowles	A. C. McCain

TOTAL NUMBER OF DELEGATES—58.

It will be noted that the total number of accredited delegates is 58, four more than one year ago. The four additional seats are due to the organization of the new Crowley County Society, the reorganization of the Morgan County Society, and increases in membership in the Denver and Otero County Societies giving Denver 24 instead of 23 delegates, and Otero two instead of one.

It might be well to call to the attention of representatives of the Delta, Northeast Colorado, San Juan, and San Luis Valley Societies that through a little effort and the gaining of a very few additional members for their Societies, their representation in this House next year would be increased.

Your Committee is ready to act on any credentials question which may arise this session.

Respectfully submitted,

FRANK B. STEPHENSON, Chairman;
JOHN P. McDONOUGH,
C. A. DAVLIN.

PROCEEDINGS OF THE HOUSE OF DELEGATES

(Continued from Page 482)

from cash to securities or vice versa. The budget is in excellent condition in the judgment of the Executive Office, though your reference committee should be the judge of that.

In a spirit of possibly justifiable pride, your Executive Secretary wishes to comment briefly on the progress of Colorado Medicine. When the Executive Office was created, it was hoped that Colorado Medicine eventually would become self-supporting, instead of being a constant financial drain upon the Society. When the first budget was drawn a year ago this goal was set for three years hence. Instead of three years elapsing, the May, 1930, issue of Colorado Medicine supported itself, and each succeeding issue has done likewise. A year ago the budget called for an advertising increase of $750 in 1930. Instead of $750, contracts now in force assure an increase of $5,242. Additional contracts still are being obtained. The Publication Committee's report will show a deficit for Colorado Medicine for the last twelve months, but the dividing line was crossed in May, and Colorado Medicine is paying its way, despite the fact that it is now more than double its former size.

It should not be supposed that a similar increase in advertising can be shown each succeeding year. A saturation point must sometime soon be reached beyond which Colorado Medicine cannot grow financially with its present potential circulation. It can hold what it has and grow slightly, but if it is to have a mushroom growth like that of the current year it must have larger clothing. Proposals for such progress will be presented to this House later in the session.

You are all familiar with the inauguration of the new section on Secretarial Notes and Comment, which has had a gratifying welcome. Two months ago an additional section was inaugurated for hospital news, which gives promise of becoming a foundation for still further growth of the Journal.

The circulation of Colorado Medicine has increased from 1,503 to 1,560 in the year. This, despite a complete revision of the mailing lists last April which removed hundreds of names not entitled to receive the Journal. At that time the Executive Office took over the mailing, installed a complete addressing system, and began mailing Colorado Medicine in envelopes. Prior to that time many copies went astray every month. Under the new system the number of mis-mailed copies has been reduced almost to zero. In April an advertising solicitor, Mr. George A. Reynolds, was employed on a straight commission basis. Our advertising increase is due in no small part to this action and to the energy displayed by Mr. Reynolds in carrying forward a selling campaign inaugurated by the Executive Office.

Second only to the Publication Committee, the Executive Secretary has been most closely associated with the Public Policy Committee. The program for developing a militant medical profession outlined in our report last year has gone forward with rapid strides. The legislative and political feature has been evidenced to all of you within the last three days. Comment upon it may be confined to the statement that what you received in the recent mail is just the beginning. Details of public policy work will be related in that committee's report. Suffice it is to say that once the work was under way the committee readily accepted an invitation to meet every Friday in the Executive Office. Under the committee's guidance the Executive Office started a series of health articles mailed to newspapers. The articles have generally been welcomed by the state press.

Your Executive Secretary has visited during the year sixteen of our twenty-five constituent societies at regular meetings. A few have been visited more than once, and the officers of all but three have been visited in their home cities. The office has on seventeen occasions supplied speakers for county society programs. This service will increase just so fast as county societies ask the office for assistance.

Twice during the year the Executive Secretary has visited the headquarters of the American Medical Association. In November, together with Dr. C. F. Kemper, then editor of Colorado Medicine, he attended the Annual Conference of State Society Secretaries and Journal Editors in Chicago. You have no time to listen to a detailed report of the conference. If you have read its papers and transactions in the American Medical Association Bulletin you will know how worth-while are these meetings, for which the American Medical Association pays all expenses of those attending. New ideas obtained at the conference have found their way into resolutions and the proposed revision of the By-Laws, to be submitted later in this session. Your Secretary also attended the Annual Conference on Medical Education, Licensure, and Hospitals, held in Chicago in February. Here a study was made of medical legislation that will be valuable in meeting our state legislative problems.

An accurate count is impossible, but the Executive Secretary has attended something more than thirty meetings of State Society Committees during the year, more than half of them meetings of the Committee on Public Policy.

Delegations of all kinds have called upon the office or have been met by appointment during the year. The laity and the other professions are recognizing the Executive Office for what the name implies and are looking upon it as the center of activity for organized medicine for the state. Among the more important delegations honoring the office was one including officers of the American Dental Association at the time of that organization's annual convention in Denver.

Though its completion occupied one girl's time for the better part of three months, the office now has as one of its most valuable assets a complete card index of every licensed doctor of medicine in Colorado, both members and non-members, so designed as to make possible instant access to any doctor's complete medical biography.

As a general information bureau on all matters pertaining to the organized profession, the Executive Office has developed even beyond the expectations of the officers. The Colorado Association has designated our office as its assistant for answering all inquiries of a medical or public health nature received. This work means principally answering mail and telephone inquiries concerning possible openings for physicians, nurses, and professional employees, concerning the health features of Colorado towns and cities, concerning hospital facilities of the state and its cities, and concerning public health work generally. In this connection it might be added that the office has developed a placement bureau service for physicians seeking locations, exceeding in volume of inquiries probably any other agency in the state. A considerable number have been

placed either directly or indirectly through the Executive Office, and this may be expected to become a more important function as time goes on. The office also acts as an informal placement bureau for doctors' office assistants, technicians and stenographers. The service is growing rapidly, and its effectiveness depends wholly upon the extent to which it is used by members of the Society.

It may be of interest in picturing the office work to know that individual letters numbering more than 5,500 have gone out during the year over the Executive Secretary's signature. This is entirely exclusive of bulletins, newspaper health articles, printed matter, or mimeographed material of any sort. This merely shows to what extent the Executive Office is being used by both the profession and the laity despite its existence of only fifteen months.

Under authority granted by this House last year, a charter was issued to the new Crowley County Medical Society. The new society has had a great deal of difficulty in getting on its feet, with but a small potential membership. Some progress has been made in recent months and the office hopes to report the society actively functioning next year.

At this time a year ago the Executive Office felt that only three or four of the county society secretaries could be depended upon for active co-operation in the necessary work of the Society, and a number of delegates looked pessimistically upon the situation. The year has seen, however, a change for the better. The response of a majority of the county secretaries now is willing and instantaneous. One defunct county society. Morgan County, has been reorganized and is active, with more members than it ever had before. Several other societies which had not held meetings for years except to elect officers annually, have held valuable scientific sessions and business meetings. The feeling that the State Society has had a re-birth has spread to all parts of the state. All but two of the county societies have called upon the Executive Office for varied forms of assistance in their organization work.

If this report has given you any sort of picture of Executive Office activities, growth of Colorado Medicine, progress of general committees, and increased activity of the whole membership, no further explanation is needed for the action of the Board of Trustees in authorizing the Executive Secretary two months ago to move the office into larger quarters, doubling its size. Within the last month it has been necessary on several occasions to employ additional stenographic help, and, despite this, it has also been necessary to impose on several doctors by borrowing additional girls from them. Without such help important work would have gone undone. In the new budget to be submitted to the Committee on Appropriations, the office requests an appropriation for an additional girl for approximately half the year. We foresee the time when one employee's time will be wholly occupied with the routine work connected with Colorado Medicine, exclusive of regular office routine. Colorado Medicine next year will be able to pay from its own earnings all salaries of the office except the salary of the Executive Secretary, and will be able to pay even part of that.

In this report no specific recommendations are made for the following year. This does not mean that there are none. Proposals for new activities will be easiest understood and discussed if presented separately. There are proposals for new publications, for a master policy of liability insurance to reduce premium costs in the smaller communities, for establishment of medical defense, and for a full revision of the By-Laws. These and others of lesser importance will be presented at your convenience for you to dispose of as your judgment dictates.

In closing, your Executive Secretary believes that considerable progress has been made and that the future looks bright. He would be remiss in his duty, however, if it were not pointed out that whatever progress has been made is the result of the whole-hearted co-operation shown the Executive Office by the Board of Trustees, the constitutional officers, and the committees. Progress will continue and will increase its momentum in direct proportion to the purposeful co-ordination and energetic co-operation that our officers and committees and our county society officers and members develop toward making the Colorado State Medical Society physically strong, financially sound, and mentally alert to its duties and its rights.

Respectfully submitted,

HARVEY T. SETHMAN.

Supplement to the Report of the Executive Secretary

Paid membership for 1930		1,086
Deaths of members paid for 1930	3	
Paid members transferred out	2	5
Active Membership, September 1, 1930		1,081
Active Membership, September 1, 1929		1,093
Loss in Membership for 1930		12

RECEIPTS

September 1, 1929, to December 31, 1929

Dues	$ 245.00
Colorado Medicine	1,012.66
Commercial Exhibits, 1929 Session	345.00
Interest and bank payment	273.81
	$1,876.47
Remitted to Treasurer	$1,602.66

DISBURSEMENTS

September 1, 1929, to December 31, 1929

General Fund	$4,185.93
Colorado Medicine	2,427.96
Special Fund	200.00
	$6,813.89
Distribution of funds December 31, 1929:	
General Fund	$ 563.00
Colorado Medicine	1,012.66
Special Fund	27.00
	$1,602.66

RECEIPTS

December 31, 1929, to September 1, 1930

Dues	$10,500.00
Colorado Medicine	4,665.82
Advanced Payments, Commercial Exhibits, 1930	250.00
Miscellaneous	4.49
Interest	242.19
Remitted to Treasurer	$15,662.50

DISBURSEMENTS
December 31, 1929, to September 1, 1930

General Fund	$ 6,670.86
Colorado Medicine	7,028.37
Special Fund	571.41
	$14,270.64

Distribution of funds, December 31, 1929, to September 1, 1930:

General Fund	$ 7,793.68
Colorado Medicine	6,801.82
Special Fund	1,067.00
	$15,662.50

TOTAL RECEIPTS—September 1, 1929, to September 1, 1930:

Dues	$10,745.00
Colorado Medicine	5,680.48
Commercial Exhibits	595.00
Miscellaneous	2.49
Interest	516.00
	$17,538.97
Remitted to Treasurer	$17,265.16

TOTAL DISBURSEMENTS—September 1, 1929, to September 1, 1930:

General Fund	$10,856.79
Colorado Medicine	9,456.33
Special Fund	771.41
	$21,084.53

ASSETS IN KEEPING OF SECRETARY'S OFFICE

Secretary's revolving fund:	
First National Bank	$ 200.00
INVENTORY:	
September 1, 1929	$ 345.47
Purchases September 1, to December 31, 1929	974.80
Purchases January 1 to August 31, 1930	110.50
	$ 1,430.77
Less 5% Annual Depreciation	71.54
	$ 1,359.23

The report was ordered referred to the Reference Committee on Reports of Officers.

Dr. L. W. Bortree read the report of the Treasurer, as follows:

REPORT OF THE TREASURER

Owing to the fact that all annual reports prior to this one have been made on the basis of a fiscal year running from one annual meeting to the next, instead of using the calendar year as provided for in the by-laws, this report must of necessity be in two parts. The first covering the period from September first to December thirty-first, 1929. The second from January first to August Thirty-first inclusive.

RECEIPTS

Balance on hand August 31, 1929		$12,610.67
Dues Received	$ 245.00	
Colorado Medicine	1,012.66	
Exhibit Space Rentals	295.00	
Refund Weld Co. Medical Society	50.00	
Interest and Bank Payment	273.81	
Total Receipts	$ 1,876.47	1,876.47
Total Receipts		$14,487.14

DISBURSEMENTS

Executive Office	General Fund	Special Fund	Total
Salary	$1,000.00	$200.00	
Overhead	263.93		
Travel	354.42		
Sta. & Mailing	19.56		
Miscellaneous	24.86		
Total Executive	$1,662.77	$200.00	$1,862.77

Colorado Medicine	General Fund	Special Fund	Total
Salaries	$ 425.00		
Printing and Mailing	1,952.06		
Miscellaneous	50.90		
Total Colo Med.	$2,427.96		$2,427.96

Annual Meeting	General Fund	Special Fund	Total
Overhead	$ 394.80		
Guests	635.91		
Promotion	146.62		
Miscellaneous	229.58		
Total annual meet.	$1,405.91		$1.405.91
Library	$ 109.35		$ 109.35
Treasurer's office	33.10		33.10
Permanent equipment	974.80		974.80

Total Disbursements	$6,813.89
Balance on hand Dec. 31, 1929	$7,673.25

Distribution of funds December 31, 1929.

Bonds	$4,500.00
Savings Acct.	3,120.84
Checking Acct.	52.41
	$7,673.25

Status of Funds

General Fund	$ 305.71
Special Fund	7,220.90
Library Fund	146.64
Total	$7,673.25

January 1-August 31, 1930

RECEIPTS

Balance on hand January 1, 1930		$7,673.25
Received from Secretary, Dues, General Fund	$ 7,299.00	
Received from Secretary, Dues, Colorado Medicine	2,134.00	
Received from Secretary, Dues, Special Fund	1,067.00	
Total Dues		$10,500.00
Received from Secretary, Colorado Medicine	4,665.82	
Space Rentals	250.00	
Received from Interest	242.19	
Miscellaneous Receipts	4.49	
Bonds, face value	3,000.00	
Total Receipts	$18,662.50	$18,662.50
Total Receipts		$26,335.75

DISBURSEMENTS

Executive Office		Total
Salaries	$2,400.00	
Overhead	455.58	
Travel	471.23	
Stationery, Mailing	258.17	
Miscellaneous	131.25	
	$3,716.23	$ 3,716.23

Colorado Medicine		Total
Salaries	$1,380.00	
Printing, mailing	4,185.75	

Miscellaneous	139.17	
Commissions	1,323.45	
	$7,028.37	$ 7,028.37

Annual Meeting — Total

Overhead	$ 22.91	
Promotion	33.23	
Miscellaneous	6.00	
	$ 62.14	$ 62.14
Library	$ 175.08	$ 175.08
Committee on Public Policy	14.42	14.42
Treasurer's office	5.05	5.05
Investments	3,158.85	3,158.85
Permanent Equipment	110.50	110.50
Total Disbursements	$14,270.64	14,270.64
		$12,065.11

Distribution of Funds

Special Fund:	
Balance on hand Jan. 1, 1930	$ 7,220.90
Received from Dues	1,067.00
Transferred from General Fund	100.00
Total Receipts	$ 8,387.90
Total Disbursements	571.41
Balance on hand	$ 7,816.49
General Fund:	
Balance on hand January 1, 1930	$ 305.71
Bonds Received	3,000.00
Dues	7,299.00
Interest	242.19
Annual Meeting Space Rentals	250.00
Miscellaneous Receipts	4.49
Special Fund Toward Secretary's salary	400.00
Total Receipts	$11,501.39
Total Disbursements	7,170.86
Balance on hand	$ 4,330.53
Library Fund:	
Balance on hand	$ 146.64
Received from Gen. Fund acct. Budget allowance	175.08
Total	$ 321.72
Disbursements	175.08
Balance August 31, 1930	$ 146.64
Division of Assets in Funds:	
General Fund	$ 4,330.53
Special Fund	7,816.49
Library Fund	146.64
Total	12,293.66
Indicated loss Colorado Medicine	228.55
Balance	$12,065.11
Colorado Medicine:	
Received from Dues	$ 2,134.00
Advertising	1,394.38
Subscriptions	366.50
Sales	4.03
Accounts Receivable	2,900.91
Total Receipts Colorado Medicine	$ 6,799.82
Total Disbursements Colorado Med.	7,028.37
Deficit	$ 228.55
Division of Funds in Bank:	
Bonds	$ 7,500.00
Savings	4,465.52
*Checking	99.59
Total	$12,065.11

*Check No. 514, $10.56 not returned.

GAIN and LOSS, Since Aug. 31, 1929

Total Assets, August 31, 1929	$12,610.67
Total Assets, August 31, 1930	12,065.11
Loss	$ 545.56
Special Fund:	
Balance on hand August 31, 1929	$ 8,268.70
Balance on hand August 31, 1930	7,816.49
Loss	$ 452.21
General Fund:	
Balance on hand August 31, 1930	$ 4,330.53
Balance on hand August 31, 1929	4,135.98
Gain	$ 194.55
Library Fund:	
Balance on hand August 31, 1929	$ 205.99
Balance on hand August 31, 1930	146.64
Loss	$ 59.35

Prior to this year, the Colorado Medicine account has been kept as a part of the General Fund and not as a separate account; hence, no accurate comparison can be made at this time. In addition to these funds, there is kept a Revolving Fund in the hands of the Secretary, amounting to $200.00 at the present time, which should be added to our assets.

At the present time, the General Fund of the Society is indebted to the Special Fund to the amount of $774.80, being a balance of the loan of $874.80, made last December, $100.00 of which has been repaid, according to the Resolution of the House of Delegates.

Inasmuch as it has become a regularly established custom for the Annnal Meeting of this Society to be held early in September of each year, it would seem wise to the treasurer that the fiscal year should terminate on September first. I, therefore, recommend that the next time the by-laws are changed, that this be one of the alterations. Under the present method, the House of Delegates cannot know how well the budget has been managed until eight months after the fiscal year is closed, and it is advisable to make the reports in two sections as this one has been made.

At this time I wish to thank the other officers of the Society and especially the Executive Secretary for the cooperation they have shown me during the past year.

Respectfully submitted,

L. W. BORTREE,

Dr. Bortree: (continuing) "I wish to make an additional verbal report on behalf of the Board of Trustees of the Society. We feel that the exceptionally fine work done by the Executive Secretary during the past fifteen months deserves some especial recognition from the Society. We therefore recommend to the Budget or Appropriations Committee that the salary of the Executive Secretary be increased by fifty dollars per month for the ensuing twelve months in recognition of his valuable services to the Society. We also wish to recommend that the salary of his secretary, who handles much of the material for Colorado Medicine, be increased by twenty-five dollars per month."

President Senger: "The report of Dr. Bortree will be referred to the Auditing Committee. His

report for the Trustees will be referred to the Committee on Appropriations."

Dr. J. W. Amesse read the report of the Delegates to the American Medical Association, as follows:

REPORT OF DELEGATES TO AMERICAN MEDICAL ASSOCIATION

It is neither convenient nor desirable to report in detail the great volume of business transacted at an annual meeting of the representative body of American medicine. It is important and proper however, to present to this constituent body a brief but adequate survey of the chief topics under discussion at this 81st annual session of the A. M. A. and to convey to you a fair conception of the sentiments expressed on the major problems of the hour.

The past year has brought rapidly to the front many questions worthy of serious debate: Some of these concern matters of policy, some of expediency; others involve issues important enough to challenge the united attention of the profession at large and a few may safely be left for proper solution with our constituted leaders.

Practically all of these problems, great and small, were presented at the annual assembly in which I have had the honor, with my fellow delegate, Dr. John R. Espey, to represent this society. In every instance, the objects of the American Medical Association, promulgated by its founders over eighty years ago, "to promote the science and art of medicine and the betterment of public health" constituted the aegis under which deliberation and discussion were conducted.

Quite overshadowing other issues, however important they may have appeared to the authors of resolutions in their behalf, the attention of the House of Delegates was largely and properly confined to a discussion of those economic conditions now besieging the medical world. In keeping with this view, a resolution was presented at the first session, by Dr. J. B. Harris of California, having for its object the establishment of a Council of Medical Economics in the Association, and amending the By-Laws to include this new group whose duties shall be (1) "to investigate conditions of medical economics and to suggest means and methods by which the same may be improved and (2) to endeavor to further the realization of such suggestions as may be approved by the House of Delegates."

This amendment was given careful consideration by the House and by the Board of Trustees and was unanimously adopted.

A further resolution, offered by the Board of Trustees and enthusiastically passed, took cognizance of the present chaotic state of legislation having for its object the relief of veterans of the world war and their dependents. It was declared that "the duty of providing medical and hospital care and financial relief for indigent citizens of any state, when disabled by diseases and injuries that did not originate in the line of military duty, is a function, not of the federal government, but of the government of the several states, and should be discharged through state agencies, including permanently established state, county, municipal and private hospitals."

A copy of this resolution was wired the President of the United States from the floor of the House and was specifically referred to by him in his message vetoing the veterans bill at that moment before him.

Another item also originating with the Board of Trustees and which met with united approval was a strong recommendation to condemn "as unsound in policy, wasteful and extravagant, unproductive of results and tending to promote communism, the federal subsidy system established by the Sheppard-Towner Maternity and Infancy Act, and to protest against the revival of that system in any form." It was held that all such cooperation between the federal government and the various states should be administered jointly by the United States Public Health Service and state health authorities.

Another resolution of perennial interest to all fellows of the Association, was one introduced by Dr. Southgate Leigh of Virginia, aiming to secure a larger attendance at the annual meeting by directing the Trustees to arrange for more reasonable hotel rates for both delegates and members in the cities where such conventions shall from now on be held. The Trustees have assured us that the provisions of this request will be fully carried out.

An important piece of legislation was sponsored by Dr. J. N. Vander Veer of New York, who submitted a resolution to request of the proper authorities that the diagnosis of disease on the stubs of prescriptions, written under the narcotic and prohibition laws, be withheld, in view of the manifest violation of medical ethics and the age-long relation between patient and physician.

The attendance of 5,100 at the Detroit Session was far below the expected number, due entirely. it must be assumed, to the business depression now being reflected in every sphere of activity. Fully three-fifths of the Fellows registering for the various sections came from Michigan and adjoining commonwealths; a dozen states were represented by ten members or less, while the attendance from Colorado, instead of approaching the hundred it usually sends to this great assembly, was only thirty-eight. Of the delegates, thirteen out of 173 never reported at all, while at the opening session twenty-five were absent. In spite of these defections, however, the session was a memorable one; the hospitality of the local and state profession was unequaled and the accomodation of the sections in one enormous and marvelously equipped building, the Masonic Temple, brought comfort and pleasure to officers and members alike. Colorado fared well as usual, in the choice of officers for 1931. We note with satisfaction the selection of the following members of this Society:

For Chairman, Section on Laryngology, Otology and Rhinology, Dr. T. E. Carmody.

For Secretary, Section on Ophthalmology, Dr. Wm. C. Finnoff.

For Chairman, Committee for Awarding the Knapp Medal, Dr. Edward Jackson.

For Member, American Board of Ophthalmological Examinations, Dr. Wm. H. Crisp.

Respectfully submitted,

J. W. AMESSE,
JOHN R. ESPEY.

The report was ordered referred to the Reference Committee on Reports of Officers.

Dr. Ella A. Mead read the report of the Board of Councillors, as follows:

REPORT OF THE BOARD OF COUNCILLORS

There has been but one problem before the Board of Councillors during the past year, and, fortunately, this was settled locally without the active interference of the Councillors.

Briefly, the problem was as follows: A member of the Boulder County Medical Society, Dr. X., moved from Boulder to Fort Collins during

the middle of the year. In due time he presented his name as a transfer to the Larimer County Medical Society. Some phases of his ethics, incident to beginning practice in a new place, aroused antagonism, and the Censor Committee of the Larimer County Society voted against his admission. Dr. X then continued his membership in the Boulder County Society till the end of the year. At that time the Boulder Society objected to continuing his membership any longer since the Larimer County members had objected to his continuing to be a member in Boulder County. Our Constuitution says a physician may hold his membership in a convenient society of another county than that of his residence, "subject, however, to the approval of the Society having jurisdiction over the place of his residence." Chap. XIII, Section 4. Owing to the objections made to the State Secretary and Board of Councilors, the Boulder Society felt it should not continue Dr. X's membership. The situation was the occasion for possible development of much feeling and dissension.

The Council made several visits to the parties involved and held several conferences with the State Secretary, but the problem was finally settled by the Larimer County Censor Committee voting favorably on Dr. X, and he was admitted to membership of the Larimer County Society.

Chapter XIII, Sec. 6, of our Constitution, also has a direct bearing on this problem: "Each constituent society shall be the judge of the qualifications of its own members, but as such societies are the only portals to this Society and to the American Medical Association, every reputable and legally qualified physician residing within its jurisdiction who does not practice or claim to practice, and agrees not to practice sectarian medicine, or whose practice is not shown to be in conflict with the principles of ethics of the American Medical Association, is eligible to membership."

The Board of Councilors feels that each constituent society should have supervision over the conduct, practice, and ethics of all physicians residing and practicing in its territory, and for that reason all physicians should hold their membership in the Society of the county within which they reside and practice, and not in some other Society which may be remote and has no way of observing or checking on the conduct of such a member. It is therefore advised that all Societies check their memberships and, if there are non-resident members on their lists, go into the reasons thereof and consider the wisdom of continuing such on their lists.

Respectfully submitted,
ELLA A. MEAD, Chairman,
G. P. LINGENFELTER,
GEORGE D. ANDREWS,
W. W. CROOK,
A. J. NOSSAMAN.

The report was ordered referred to the Reference Committee on Reports of Officers.

President Senger called for reports from the Vice Presidents, but none had any reports to offer.

President Senger then read the annual report of the President, as follows:

REPORT OF THE PRESIDENT

The hearty cooperation of this body has made possible whatever your officers have accomplished during the past year. To you and to the other members of the Colorado State Medical Society I wish to express our sincere thanks for your ever present helpfulness.

During the past year our Society has made, I feel, considerable progress. Much of the credit for this gain rightfully belongs to our new experiment—the Executive Secretary. Those in close touch with his efforts realize that his appointment has been a most happy one. He has built up our Society and has cemented it; he has had our committees working hard and in harmony; his diligence has made Colorado Medicine self-supporting; his other duties have been performed well. He deserves our sincere commendation.

The medical profession has been gradually undergoing an evolution. Until a few years ago, the physician's attitude toward the public was one of submission; then it became one of resistant submission; now we are entering upon a period of aggressiveness. It is wise that this should be,—much as our profession dislikes the change. Nothing is gained without aggressiveness in these days of high-powered salesmanship. We are beginning to realize this. We must sell our knowledge. None other will sell it for us. However, salesmanship as applied to medicine should never be measured in terms of dollars and cents—it must always be measured in terms of altruism. But, unfortunately, to sell altruism requires just as much push as the sale of any commodity—tangible or intangible.

The "Cost of Medical Care" deserves special mention. This survey is being conducted impartially by eminent citizens. Let us give them all possible aid. As physicians, we know that when their investigations are complete, our profession will be thoroughly vindicated.

The nursing problem is becoming more and more acute. We should take time to reflect carefully whether the nurse of today—with her vastly increased educational advantages—serves us better than the nurse of ten years ago—with her human understanding and sympathy. This becomes a vital question—and it seems to me that our profession is the one to solve it and not to leave such a basic problem to self-appointed committees to dictate what shall or shall not be the requirements of our greatest help—the trained nurse.

Malpractice insurance has been discussed several times by this Society. Fortunately, for our peace of mind, this question has not become acute in this state. The time will soon come, I am afraid, when we shall regret our procrastination. The membership of this Society should be protected as a whole. This would be the surest way of silencing the grafter. The latter has done much damage in some of our neighboring states—it will be but a short time when he will transfer his activity to the state where pastures are new and unprotected. Let us prepare for him.

The people as a whole assume no responsibility for the health and protection of themselves. They foist this entire burden on the medical profession—and then often shriek against us because we advocate what is best for them. For this reason, the Committee on Public Policy must ever be on the lookout. Legislatures are sometimes led astray by the loud mouthed clamorings of the ignorant and the vindictive, mistaking their excessive noise for the real expression of their entire constituent body.

It is the burden of the Committee on Public Policy to educate the legislature in things medical. They have done their duty well and deserve our thanks.

However well the legislature may be convinced that our wishes are unselfish and for the public good, nevertheless, our opponents do not concede

anything. If they cannot gain their end by one means, they seek another. At the present time, for instance, the Parent Teachers' Association is gradually being so manipulated as to be a potential menace to school preventive medicine. Gradually, but surely, the small group opposed to medicine are trying to gain control of the P. T. A. and they would gladly sacrifice all the good accomplished by our profession upon the altar of stupidity and vicious ignorance. It is our duty to check this before it becomes too late.

Numerous other suggestions might be made to you—but your activity for and interest in the constant progress of our profession will point the way for your deliberations.

Especially to those who so generously contributed to make the meeting at Greeley such a success do we extend the thanks of the Society. To you all, members of the House of Delegates, do I acknowledge with deep gratitude your consideration, friendship and loyalty.

WILLIAM SENGER.

The report was ordered referred to the Reference Committee on Reports of Officers.

Annual reports of Standing Committees were then called for.

Dr. Maurice H. Rees read the report of the Committee on Scientific Work, as follows:

REPORT OF THE COMMITEE ON SCIENTIFIC WORK

Your Committee on Scientific Work has the honor to submit the following report:

After a series of meetings your Committee prepared the program in preliminary form for publication in the July issue of Colorado Medicine.

Five guest speakers were secured as follows:

William Gerry Morgan, M.D., President of the American Medical Association, Washington, D. C.

Esmond R. Long, M.D., Department of Pathology, University of Chicago, Chicago, Illinois.

Alfred W. Adson, M.D., Mayo Clinic, Rochester, Minnesota.

C. R. G. Forrester, M.D., Chicago, Illinois.

Ellis Fishel, M.D., Washington University School of Medicine, St. Louis, Missouri.

The Committee was somewhat embarrassed by having only $250.00 for securing outside speakers. We would recommend that this fund be substantially increased, so that the necessary expenses of guest speakers may be provided for.

We attempted to get a state wide representation on the program by asking the county secretaries to suggest speakers. This plan was not successful since only a few secretaries responded to our request.

We would suggest that in the future it would be advisable to have the various specialties represented insofar as possible, on the program. This might be done by securing suggestions from the state secretaries of the various specialty organizations.

The Committee wishes to express its appreciation of the great assistance rendered by our Executive Secretary.

MAURICE H. REES, Chairman.
CRUM EPLER,
CARBON GILLASPIE.

The report was ordered referred to the Reference Committee on Reports of Committees.

At the request of the President, Dr. John B. Crouch, First Vice President, assumed the chair.

Dr. William H. Halley read the report of the Committee on Public Policy, as follows:

REPORT OF THE COMMITTEE ON PUBLIC POLICY

Your Committee on Public Policy began its activities in January and has held frequent meetings in the office of the Executive Secretary throughout the year. A transcript of the proceedings has been forwarded to those members of the committee who were unable to attend the meetings. It has been the object of the committee to keep informed on everything affecting the Public Health and to represent the Society in all matters concerning its policies or the welfare of any of its members.

Although the State Legislature has not been in session this year, preparation for legislative action has been carefully planned. During the term of the coming legislature your new Committee on Public Policy will be prepared to present the society's attitude on scientific and progressive medicine.

Some of the committee's activities are herewith appended.

The Executive Secretary was directed to take up with the proper authorities the matter of the violation of the State Law concerning the superintendency of the State Home and Training School for mental defectives at Ridge, Colorado. The Board of Control had for two years failed to observe the section of the Law requiring a Medical Superintendent for the Home. Following an examination by the State Civil Service Commission, a member of the Colorado State Medical Society was placed in charge.

On April 25, 1930, the committee released the first of a series of bulletins to newspapers of the state on Public Health and First Aid Questions. While this venture is new, the clippings returned to the executive office indicate a widespread use of these educational articles by Colorado newspapers. Returned clippings probably do not represent all publicity that has been given these bulletins, but they show that at least 61 Colorado newspapers out of a mailing list of 180 have used them.

Late in May the Committee took an active part in investigating an unwarranted assault perpetrated in Kansas City on one of our delegates to the American Medical Association. Co-operation of the Medical profession and newspapers of Kansas City was readily obtained and unjust lawsuits filed in Kansas City against our delegate were dismissed.

The Committee has on several occasions entered formal protests with church and other organizations in Denver against the use of church and club buildings by fake lecturers who promote false health doctrines and dangerous rejuvenating stunts under the guise of semi-religious or psychology lectures.

The Committee has entered vigorous protests against the practise of taxation officials giving interviews to the public press accusing the medical profession of tax dodging.

The Committee appeared before the State Board of Health in May in support of a complaint lodged by Montrose members of our society against a hospital in Montrose, charging the superintendent of the Hospital, who was a registered nurse, with practicing medicine. The license of the hospital was later surrendered.

Telegraphic and mail protests have, on suitable occasions, been sent to our Senators and Congressmen against the passage of the Jones-Cooper Maternity and Infancy Bill, and against the so-called Porter bill.

The Committee, subject to advice of this House

of Delegates has resolved: That the new Registration Fee Law administered by the State Board of Medical Examiners be so amended as to eliminate the fee of $10.00 now imposed upon practioners holding Colorado licenses but residing outside of the State.

The Committee has reported to the State Board of Medical Examiners a considerable number of protests that have come to the Executive office concerning illegal activities of Chiropractors and other cults.

The Committee early in the year accepted a proposal of the Colorado Association, whereby all inquiries to the Association concerning medical or public health matters in Colorado were referred to our Executive office. Our Executive office has, during the year, answered several hundred such inquiries.

The Committee recently authorized the Executive Secretary to query all county medical societies regarding the attitude of prospective legislative candidates on questions of scientific medcine, and from such answers to prepare a bulletin for all members of our society, seeking support for such candidates as would most likely give attentive consideration to scientific medicine and public health in the next legislature.

In this matter your committee sought and obtained the cooperation of the legislative committee of the Colorado State Dental Association. On September 5, 1930, the Executive Secretary sent a bulletin to all members of the Colorado State Medical Society and of the Colorado State Dental Association recommending legislative candidates on whom favorable reports had been received from constituent societies. This will be followed by a like bulletin before the November election.

The Committee wishes to acknowledge the cooperation it has received from the Colorado State Board of Health, and the Colorado State Board of Medical Examiners and the civil Service Commission.

It is unnecessary to report to this House in detail all of the activities of the Committee and of the Executive office which have been directed by the Committee during the year. The Committee wishes to recommend that such activities as have been published from time to time in Colorado Medicine be considered as a part of this report.

In conclusion the committee wishes to express its gratitude to the Executive Secretary, Mr. Sethman, for the efficient, prompt and successful manner in which he has handled its affairs. Without Mr. Sethman, your committee could not have carried out its program.

Respectfully submitted,

WM. H. HALLEY, Chairman,
CHAS. N. MEADER,
C. F. KEMPER,
HARRY S. FINNEY,
L. H. McKINNIE,
L. E. LIKES.
N. A. MADLER.

The report was ordered referred to the Reference Committee on Reports of Committees.

At this point President Senger reassumed the chair.

Dr. F. B. Stephenson, in the absence of Dr. C. S. Bluemel, chairman, and at the latter's request, read the report of the Committee on Publication, as follows:

REPORT OF COMMITTEE ON PUBLICATION

The usual twelve issues of Colorado Medicine have been published since the last annual meeting. These issues have comprised a total of 946 pages including covers. The Scientific Section has taken 516 pages and the Advertising Section 430 pages.

Receipts and expenditures can be summarized as follows:

RECEIPTS

Appropriation ($2 per capita)	$2,134.00
Wyoming and independent subscriptions	366.50
Receipts from advertising and sales of individual copies	$5,593.07

EXPENDITURES

Printing and mailing	$6,137.81	
Commissions paid to advertising agent	1,527.54	
Editor's salary	455.00	
Editor's secretary's salary	1,425.00	
Miscellaneous	190.07	
Deficit		1,641.85
	$9,735.42	$9,735.42

A large part of the deficit shown above is accounted for by the fact that advertising commissions are paid in advance. When the advertising agent presents a twelve months' contract, he receives his commission at the time, though the Journal's compensation is spread over a period of twelve months. Advance commissions of this character amount to $1,183.57.

During the past year Colorado Medicine has received 65 books for review and 62 volumes of exchange journals. These books and journals become the property of the State Society and are available at the Medical Library in Denver.

The Scientific Section of the Journal has been ably edited by Dr. J. Rosslyn Earp, to whom the Committee extends its thanks and appreciation.

Mr. Harvey Sethman joined the Journal as business Manager in October, 1929. His diligence is evidenced by the following potent figures: In the first eight months of the present year the receipts for advertising have been $4,297.28, as contrasted with $2,880.53 for the first eight months of the year preceding, when no business manager was available.

Another interesting comparison. Advertising receipts for the August issue in 1929 were $250.18 The advertising receipts for August, 1930, were $791.13, an increase of over two hundred per cent.

For the first time in its history, Colorado Medicine is now operating at a profit, and it is to be anticipated that a substantial profit will be shown in the next annual report. The deficit shown in the present report is due to the fact that the advertising increase has benefited only the last five issues of the Journal, while the seven prior issues were run at the customary loss.

The Committee extends its thanks to Mr. Harvey Sethman for his efficient service as Business Manager of Colorado Medicine, the official organ of the State Society.

Respectfully submitted,

C. S. BLUEMEL, Chairman,
WM. H. CRISP,
GEORGE A. MOLEEN.

The report was ordered referred to the Reference Committee on Reports of Committees.

Dr. W. B. Yegge, in the absence of Dr. Edward Jackson, chairman, read the report of the Committee on Medical Education, as follows:

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION

In spite of the lengthening of the medical course; in spite of the building of hospitals and laboratories to give education that the 20th century rightly demands as preliminary to entering upon medical practice, every year increases the need for graduate study and graduate teaching. The young graduate in medicine must go on with his studies, to be fully fitted to practice his profession, even in the smallest or most isolated community. The oldest veteran in the profession must continue his studies; if he would deserve and retain the confidence of his patients, by being able to bring all the swiftly increasing knowledge and methods of his profession to their help.

At the University of Colorado this summer members of the classes came from forty-six of the forty-eight states of this country and from other countries. These were largely teachers, free during the summer vacation to come to Colorado to add to their professional qualifications. In the Denver Summer Course on Ophthalmology and Oto-Laryngology the class of fifty-five represented nineteen states, from which those engaged in special practice were able to come for a two weeks' graduate course. At the spring clinic at the Colorado General Hospital about 150 physicians from all parts of the state, outside of Denver, were in attendance, for the few days taken from daily service to their patients, to fit themselves for better service in the future.

The problem of furnishing opportunities for better education, to the medical profession, is one of awakening an interest in continued medical study in each member of the profession; and of getting to them the opportunities they want. This is the problem in medical education before this Society, and we must endeavor to understand the existing situation, and then how to meet it. Graduate study in medicine includes many things to be done in many ways; and all the ingenuity of both teachers and students may be required to get it well started and keep it going.

Our plan must include: First bringing together teachers and students. Graduate study of medicine is study to be carried on by those who are already daily working in the practice of medicine; and an important part of that study must be carried on at the homes and fields of practice to the students. Physicians may well be gathered in the medical school, for relatively brief periods at certain intervals, where the apparatus of investigation and practice may be seen and used. But such gatherings can only occupy a small part of the time of any physician in active practice. The physician-student can spend time every day in thought, about the observation he is making and the problems that are daily thrust upon him. But to keep thought practical and fruittul, he must keep in touch with the thinking of others interested in the same problems. It is easier, less expensive, to transport one teacher than a class of students. The State Medical Society should form the plan and supervise the bringing together of teachers and students. The resources of our State Medical School should be understood and utilized, in every way and at all times practical. But the daily study and development of every physician should be stimulated and assisted, in so far as possible, by especially trained and inspiring teachers.

We have such teachers in Colorado; both inside and outside of the teaching faculty of the Medical School of our University. The Committee on Medical Education should be instructed to make a list of such teachers, and the subjects on which they are prepared to lecture and conduct demonstrations and discussions; such list to be offered to the members of the constituent societies. The Committee should also make arrangements between the societies and lecturers, or with the university representing them, for the subjects, places and dates for such instruction; including in its list eminent teachers from outside the state, when their assistance may, from time to time, be available.

To place this organization in touch with our members, in all parts of Colorado, it is recommended that the Committee on Medical Education be authorized to extend its membership, by the appointment of one associate member from each of our constituent societies. Such associates should have the duty of ascertaining what particular topics would be of greatest interest to their fellow-members, and to make local arrangements of time and place for teachers to meet classes of members. They should also be authorized to cooperate with associates from neighboring societies, to plan for joint meetings of groups with such teachers; or for a series of such meetings in adjoining counties or districts.

Such teaching must entail some expense, that should not be borne by the teachers. This will have to be provided for by plans made and revised after careful discussion. Perhaps the best general arrangement would be the expense of getting to the place where the lectures are held, to be met by the Colorado State Medical Society, the University or such other general organization as would join in support of this teaching; and to have the local expense met by the profession of the place where such teaching was given. This matter should be carefully considered by the House of Delegates, and a plan evolved which would be prudent and effective; but not so rigid as to prevent variation, or be impractical.

The graduate education of the medical profession is of enormous importance. It is a new undertaking that should command the interest and cooperation of the whole profession. The State Medical Society must take an essential part in bringing it about and carrying it on. The newer Western states, with their developing educational institutions and comparative freedom from fetters of tradition and custom, have the best opportunity to explore this new field and develop practical methods, suited to the requirements that have arisen from the extension of modern medicine and the needs of our present ways of life.

EDWARD JACKSON, Chairman.
W. B. YEGGE.
O. M. GILBERT,

The report was ordered referred to the Reference Committee on Reports of Committees.

Dr. E. D. Downing, chairman, announced that the Auditing Committee would have its report ready at a later date.

The report of the Committee on Arrangements was postponed until a later date.

President Senger: "The next order of business will be the annual reports of Special Committees, beginning with the Committee on Social Medicine."

Mr. Sethman, Executive Secretary, in the absence of Dr. B. B. Jaffa, chairman, read the re-

port of the committee on Social Medicine, as follows:

REPORT OF THE COMMITTEE ON SOCIAL MEDICINE

Your Committee on Social Medicine begs to report that in response to a request from the Colorado Tuberculosis Association, the Committee urged the cooperation of all County Medical Societies in the campaign conducted and sponsored by the Tuberculosis Associations of the United States for the dissemination of information concerning the protection of children from Tuberculosis.

No other activities requiring our attention have been brought to the notice of the committee.

Respectfully submitted,
B. B. JAFFA, Chairman,
W. B. HARDESTY,
GEORGE H. CURFMAN.

The report was ordered referred to the Reference Committee on Reports of Committees.

Mr. Sethman, Executive Secretary, in the absence of Dr. W. C. Finnoff, chairman, read the report of the Committee on Medical Literature, as follows:

REPORT OF THE COMMITTEE ON MEDICAL LITERATURE

The Committee wishes to again remind the Society at large of the service that its Library and the Library of the Medical Society of the City and County of Denver are prepared to render:

1. Loans by Title—i. e., books or journals will be sent upon request.

2. Reference Service—a. Literature on any stated subject will be found and shipped upon request.

b. The contents of current journals are examined when received and all articles appearing on a stated subject will be sent to those members requesting this service.

3. Periodical List—Two hundred and twenty-eight periodicals are received regularly. A member may designate a journal or number of journals which he wishes to receive regularly and which will be loaned for one week. (All loans, to be sure, subject to the rules of the Library, the only charges being the cost of transportation both ways.)

The following report is submitted:

Number of volumes in the Library September 1, 1929	1862
Volumes received through Colorado Medicine September 1, 1929 to September 1, 1930.	64
Volumes purchased September 1, 1929 to September 1, 1930.	43
Total volumes in the Library September 1, 1930	1,969
Cost of volumes purchased	$343.53
Amount paid from appropriation	175.08
Excess above appropriation	$168.45
Library Reserve Fund, September 1, 1929	$224.74
Excess charged to Reserve Fund	168.45
Balance in Reserve Fund, Sept. 1, 1930	$ 56.29
Total visitors residing outside Denver, September 1, 1929 to September 1, 1930	150
Shipments requested, September 1, 1929 to September 1, 1930	108
Items loaned, September 1, 1929 to September 1, 1930	440

WILLIAM C. FINNOFF, Chairman,
A. J. MARKLEY,
GERALD B. WEBB.

SUPPLEMENT TO REPORT OF COMMITTEE ON MEDICAL LITERATURE

Books Purchased for the Colorado State Medical Society Library, Sept. 1, 1929 to Sept. 1, 1930.

Babcock: Surgery. 1929.
Boveri: Origin of Malignant Tumors. 1929.
Buckstein: Peptic Ulcer. 1930.
Cooper: Contraception. 1928.
Cowdry: Human Biology. 1930.
Davis: Applied Anatomy. 8th ed. 1929.
De Lamar Lectures, series 1, 2, 3, 4.
Dew: Hydatid Disease. 1928.
Duffie: A Book for Us Diabetics. 1929.
Engel, St. Handbuch der Kindertuberkulose. vol. 1 and 2. 1930.
Evans: Anemia. 1926.
Forscheimer Supp.
Funk: Vitamines. 1922.
George and Leonard: The Vertebrae Roentgenologically Considered. 1929.
Harvey Lectures, 1928-1929 series.
Harris: Neuritis and Neuralgia. 1926.
Hay: The Neck. 1930.
Hess: Rickets. 1929.
Hirsch: Biographisches Lexikon. vol. 1 and 2.
Jones & Lovett: Orthopedic Surgery. 2nd ed. 1929.
Kohler: Roentgenology. 1928.
Kuntz: Autonomic System. 1929.
Law: Mastoids. 2nd ed. 1929.
Leathes: Fats. 1925.
Levine: Coronary Thrombosis. 1929.
Macallum: Nutrition. 4th ed. 1930.
McClunb: Microscopical Technique. 1929.
Myers: Tuberculosis Among Children. 1930.
Otosclerosis. 2 vols.
Pavlov: Lectures on Conditioned Reflexes. 1928.
Pemberton: Arthritis. 1929.
Piney: Clinical Atlas of Blood Diseases. 1930.
Sante: Chest. 1930.
Schilling: Blood Picture. 1929.
Wells: Chemistry in Tuberculosis. 1923.
Who's Who in Medicine. 1925.
Williams: Doctor in Court. 1929.

Books Received by Colorado Medicine for Review September 1, 1929, to September 1, 1930.

A. M. A. Council on Pharmacy and Chemistry. Report. 1929.
Bainbridge: Report of the 5th International Congress of Milltary Medicine and Pharmacy. 1929.
Beckman: Treatment in General Practice. 1930.
Beilin: Gall-bladder Disease. 1929.
Bohler: Treatment of Fractures. 1929.
Brain & Strauss: Neurology. 1930.
Browntree, Brown and Roth: The Volume of Blood and Plasma.
Cabot: Physical Diagnosis. 10th ed. 1930.
Campbell: Textbook of Orthopedic Surgery. 1930.
Certified Milk Conference. 1929.
Clough: Diseases of the Blood.
Collins: Insomnia. 1930.
Corner: Anatomy. 1930.
Crummer: Heart Disease. 2nd ed. rev. and enl.. 1930.
Daukes: The Medical Museum. 1929.
Dawson: The Beginnings, Egypt and Assyria 1930.
Fishberg: Hypertension and Nephritis. 1930
Goepp: State Board Questions and Answers. 6th ed.
Graham: Surgical Diagnosis. 3 vols. 1930.
Hühner: Sexual function. 3rd ed. 1929.

Interns Handbook: Members of the Faculty of the College of Medicine, Syracuse University.
League of Nations: Cancer Commission Reports. 1929.
League of Nations: International Health Yearbook.
League of Nations: Statistical Handbook Series 13, 1929. (Scotland.)
League of Nations: Serodiagnosis of Syphilis.
May: Manual of Diseases of the Eye. 1930.
Medical Clinics of North America. 6 vols.
Nissen: Practical Massage. 5th ed. 1929.
Norris and Landis: Diseases of the Chest. 4th ed. 1929.
Norris: Uterine Tumors. 1930.
Oblath: Colour Vision Tests. 1930.
Perry: Dietetics and Nutrition. 1930.
Power: Medicine in the British Isles. 1930.
Rawlins: Textbook of Massage. 1930.
Ringer: Clinical Medicine for Nurses. 3rd ed. 1929.
Rockefeller Foundation: Annual Report. 1928.
Sansum: Normal Diet. 3rd ed. 1930.
Sansum: Treatment of Diabetes Mellitus. 1929.
Schellberg: Lectures on Colonic Therapy. 1930.
Seifert, Mueller and Andrus: Physical and Clinical Diagnosis. 1930.
Simpson: Tularemia. 1929.
Smith: Baby's First Two Years. Rev. ed. 1930.
Skrainka: Up-to-date Medical Information for All.
Soper: Health Essays. 1930.
Surgical Clinics of North America. 6 vols.
Tietsort: Temperance or Prohibition?
Toomey: Diseases of the Skin. 1930.
Tracy: Basis of Epilepsy. 1930.
Transactions of the 40th Annual Meeting of the Medical Society of Hawaii.
Turner: Personal and Community Health. 3rd ed. 1930.
White: Cancer of the Breast. 1930.
Wolbarst: Gonococcal Infection in the Male.

The report was ordered referred to the Reference Committee on Reports of Committees.

Mr. Sethman, Executive Secretary, in the absence of Dr. P. O. Hanford, chairman, read the report of the Committee on Hospitals, as follows:

REPORT OF THE COMMITTEE ON HOSPITALS

The Committee on Hospitals submits for your consideration the following report.

The matter of the classification of the Presbyterian Hospital, Denver, handed down from the Committee of last year as noted in our semi-annual report, was terminated by the classification of this hospital by The American College of Surgeons. The findings and recommendations of this committee are already in your hands.

In addition to the very comprehensive report of this committee for last year we submit that by the completion of units connected with several hospitals and sanitaria the number of available beds has been increased materially during the year.

To this committee has been referred the application for Intern ratings of several hospitals and your committee has felt honored by these requests. The postion this committee occupies in the State Society is only honorary or advisory. It can recommend but has no authority beyond its mere suggestions. Therefore this committee begs to recommend that proposed changes in the by-laws be enacted. That this be made a standing committee in order that it may be given due authority to represent the State Society, thus increasing its efficiency, and by authorized co-operation with the American Medical Association, be a more valuable aid to the designated committees of that body.

Your committee further recommends that its name be changed to the Committee on Medical Education and Hospitals, to conform with the suggestion of the American Medical Association.

P. O. HANFORD, Chairman,
R. W. ARNDT,
R. P. FORBES.

The report was ordered referred to the Reference Committee on Reports of Committees.

The report of the Committee on Military Affairs was postponed until a later date.

Mr. Sethman, Executive Secretary, in the absence of Dr. F. G. Ebaugh, chairman, read the report of the Committee on Mental Hygiene, as follows:

REPORT OF THE COMMITTEE ON MENTAL HYGIENE

During the past year your committee for mental hygiene has continued the educational policies previously outlined. The community clinic development emphasized in last year's report has continued, and a total of 182 children were examined in Sterling, Durango and Greeley. The results reported by the workers in these clinics are eminently satisfactory.

The Mental Hygiene Committee has no means of furthering the mental hygiene activities of the state, and its function can therefore be little more than to observe these activities and report them to the Colorado State Medical Society. These activities are largely the proceedings of the Colorado Mental Hygiene Society. The principal work of the society has consisted in presenting Dr. Arthur Ruggles in Denver for a series of lectures on mental hygiene. Dr. Ruggles is a man of national reputation, and his lectures were splendidly received.

The committee has recommended to the board of medical examiners of this state that questions on psychiatry and mental hygiene be given as a part of their examination. Since this committee of the Colorado State Medical Society cannot actively participate in mental hygiene work we wish to recommend that the Colorado State Medical Society support the work of the Colorado Mental Hygiene Society by taking an institutional membership. This will furnish the occasion for an annual financial subscription to the cause of mental hygiene.

FRANKLIN G. EBAUGH, Chairman,
C. S. BLUEMEL,
PHILIP WORK,
H. A. LaMOURE,
F. H. ZIMMERMAN,
FRANK STEVENS,

The report was ordered referred to the Reference Committee on Reports of Committees.

Dr. C. E. Harris read the report of the Committee on Periodic Health Examinations, as follows:

REPORT OF THE COMMITTEE ON PERIODIC HEALTH EXAMINATIONS

Your committee herewith submits the following report:

Meetings during the year were held as follows:

Morgan county, Dr. Lowell Little.
Larimer county, Dr. Bernard Yegge.
Garfield county, Dr. W. A. Kickland.

Crowley county, Dr. Fred M. Heller.

While the periodic examination has been quite widely discussed in Colorado during the past two years your committee believes that continuation of its activities is ill advised for several reasons. First it is quite evident there is little interest in the periodic examination among the Colorado profession. While several societies have given perfunctory endorsement to the plan, not one has developed any follow up program.

Further, your committee is convinced that the periodic examination is the wrong approach to a problem which can better be reached by another plan. We suggest that this committee be replaced by a committee on medical extension for the following reasons:

No health program can achieve full success unless backed by organized medicine. The cooperation of the county units can be secured for this and other measures only when they entertain a higher regard for the State Society. Anything which promises greater solidarity should be favorably considered. In our opinion a plan for carrying clinical teaching to our various county units offers a reasonable hope of initiating that basic fundamental of cooperation without which neither the periodic examination nor any other worth while measure can succeed. Your committee is quite satisfied that any movement for extension work along academic or didactic lines is doomed to failure. The prospect is much better that we can engage the interest of the family physician by clinical demonstrations. We are not prepared at this time to give a complete outline of a plan for medical extension work. Its efficient development will doubtless require years. It is, however, reasonable to anticipate a time when the State Society will be able to place clinical units in the fleld, equipped for thoroughgoing diagnosis. Genuine health progress without educational reform is unthinkable. We would do well to recall that betterment of the public health and advancement of professional standards are the two things which justify our corporate existence. Their neglect can lead only to continued inefficiency. Their fair appraisal, in our bellef, shows the way to a new and better era in the history of our society.

C. E. HARRIS, Chairman,
FREDERICK M. HELLER,
LOWELL LITTLE.

The report was ordered referred to the Reference Committee on Reports of Committees.

The report of the Committee on Co-operation with the State Pharmacal Association was postponed until a later date.

Dr. F. B. Stephenson, at the request of Dr. Maurice H. Rees, chairman, read the report of the Committee on the Cost of Medical Care, as follows:

REPORT OF THE COMMITTEE ON THE COST OF MEDICAL CARE

Your Committee on the Cost of Medical Care can not submit a satisfactory report since the data which is being secured by the National Committee is still in an unorganized form and general conclusions cannot be derived.

You have no doubt noted that the name of the National Committee has been changed to "Committee on Costs of Medical Care," thus indicating that more than one element is involved.

A series of eight preliminary publications have been issued by the National Committee. These reports are for the most part reports of surveys in limited localities and cannot be used for general conclusions. Probably the most interesting report concerns the survey made in Shelby county, Indiana. This may be taken as a typical rural community. The distribution of Medical Costs were found to be as follows:

Drugs and Medicines	34.8 %
Physicians	28.6 %
Hospitals	14.7 %
Dentists	10.3 %
Osteopath, Optometrist, Christian Science, Chiropodist	3.8 %
Chiropractor	3.7 %
Registered and Practical Nurses	2.7 %
Public Health	1.3 %

It is interesting to note that preliminary reports from city communities would indicate that the hospital cost is often 60% of the total cost of medcal care.

Dr. Ray Lyman Wilbur, Chairman of the National Committee. sums up the first three years works as follows:

1. "The personal relation between physician and patient must be preserved in any effective system of medical service."
2. "The concept of medical service of the community should include a systematic and intensive use of preventive measures in private practice and effective support of preventive measures in public health work."
3. "The medical service of a community should include the necessary facilities for adequate diagnosis and treatment."

Most of the survey data is now in the hands of the National Committee, but a final report can not be expected until 1932.

Undoubtedly the question of medical economics has been too long neglected by the medical profession. This is especially true of our county and state societies. We see a growing tendency to bring the discussion of the question out from the hospital cloak rooms and on to the floor of our societies.

At the Detroit meeting of the American Medical Association, some rather radical resolutions were adopted along this line. On a recent program of the California Medical Society a very interesting paper was read on "The Business of Medicine."

It might be in keeping with the trend of the times for our State Society to appoint a Committee on Medical Economics. If such a committee is appointed, the Committee on the Cost of Medical Care should be discontinued.

MAURICE H. REES, Chairman,
S. B. CHILDS,
J. J. WARING,
JOHN B. HARTWELL,
GEORGE H. CURFMAN.

The report was ordered referred to the Reference Committee on Reports of Committees.

Dr. Harold T. Low, at the request of President Senger, ex-officio chairman, read the report of the Committee on Industrial Commission Fees, as follows:

REPORT OF THE COMMITTEE ON INDUSTRIAL COMMISSION FEES

The committee appointed last year to consult with the Industrial Commission as to changes in the fee schedule, respectfully reports as follows:

As the result of several meetings, a revision of the fee schedule was made by your committee. This suggested fee schedule was printed in a recent number of Colorado Medicine. This was presented by your committee in person to the Industrial Commission on March 14, 1930. They promised to consider the matter and if necessary to meet again with your committee. About two

months after this meeting, the Industrial Commission met with the representatives of the insurance carriers in order to hear their side of the argument.

Although we have, upon several occasions, asked the commission for their decision, we have been unable as yet to get an answer. We have, however, a verbal promise from the Industrial Commission that a final decision will be rendered not later than October 15th, 1930, and as much sooner as is possible under the circumstances.

The commission offers as reason for the long delay that two of the three members have been unavoidably occupied in the last two months with the settling of labor troubles involving violations of the eight-hour law. In addition, the chairman of the commission is and has been for several weeks in the hospital as the result of an automobile accident.

We earnestly recommend that action be continued until satisfaction is obtained.

WILLIAM SENGER, Chairman,
WILLIAM H. HALLEY,
CRUM EPLER,
JOHN R. ESPEY,
HAROLD T. LOW,
H. G. GARWOOD.

The report was ordered referred to the Reference Committee on Reports of Committees.

Dr. C. F. Hegner read the report of the Committee on Finance, as follows:

REPORT OF THE COMMITTEE ON FINANCE

As Chairman of the Committee on Finance, I beg to submit the following report:

March 12, 1930, purchased from International Trust Company, one Trinidad Water Bond, No. 113; interest 4¾%; maturity 1938; optional 1933. Amount, $1,005.80. Actual cost with accrued interest on account of delayed action, $1,016.95.

April 2, 1930, purchased from Kramlich, Reed and Company, two City and County of Denver Water Bonds, numbers 4204 and 4205; interest 4½%; maturity 1955. Amount $2,125.40. Actual price paid, with accrued interest because of delay in action, $2,141.90.

Total expenditure, $3,158.85.

C. F. HEGNER, Chairman,
H. R. McKEEN,
L. W. BORTREE.

The report was ordered referred to the Reference Committee on Reports of Committees.

Dr. Harold T. Low, chairman, reported verbally for the Committee on Golf Tournament and explained arrangements for the annual golf tournament.

The report of the committee was ordered accepted, there being no objection.

President Senger: "There is no unfinished business left from the last session. The Executive Secretary has some new business to present at this time."

Mr. Sethman: "Mr. President and Gentlemen: The principal piece of new business, which was referred to in the Executive Secretary's annual report, is the revision of the By-Laws, copies of which you all have received. Under the existing By-Laws it is necessary for an amendment to be presented in writing and be laid on the table one day. As you know, this proposed revision has been prepared on behalf of the Board of Trustees, with assistance from many sources. In order to bring the matter formally before the House, I will present this copy of the proposed revision on behalf of the Trustees."*

On motion, seconded and carried, the proposal for revision of the By-Laws was referred to the special committee previously appointed by the President for that purpose.

President Senger: "A communication is on the desk which I believe should be read at this time."

Dr. F. B. Stephenson then read the communication, as follows:

To the House of Delegates of the Colorado State Medical Society, Sixtieth Annual Session:

It will be remembered that one year ago, upon the expiration of my third term as Secretary of the Colorado State Medical Society, it was suggested that because of my familiarity with the details, and routine of the office and with the undertakings of the Society, it would be well for me to serve another year in order to initiate our then new executive secretary.

While I was reelected for the usual three-year term, I felt that one year would be sufficient for the purpose, and expressed the desire to resign at the following annual session.

I believe there is no legitimate reason on the grounds of necessity for my continuing longer in office and am happy to tender hereby my formal resignation in favor of the man of your choice who I trust may provide more initiative and newer points of view in the conduct of the office.

I have felt complimented by my retention in office and am humbly grateful for the confidence in me displayed on your part in the past.

It goes without saying that any information or advice at my disposal and which may be sought of me by the officers of the society, will be freely theirs.

(Signed),
F. B. STEPHENSON.

President Senger: "What will you do with this resignation?"

Dr. Harris: "I move that the resignation be accepted with the profound thanks of the Society to Dr. Stephenson."

The motion was regularly seconded.

President Senger: "I think we all feel the same way in regard to Dr. Stephenson. We would like to have him continue in office, because his advice is always sound. He has a wide knowledge of the Society, perhaps more so than anyone connected with it; but if he feels that he should resign, and that is his wish, I see no reason why we should not accept his resignation."

Dr. Garwood: "May I rise to a point of order? If the resignation is accepted, I believe it is proper that it be referred to the Committee on Nominations."

There being no further discussion, Dr. Harris' motion was put and carried. It was directed that the Committee on Nominations take note of the additional office to be filled.

On motion, seconded and carried, the House adjourned until 8:00 a. m. the following day.

SECOND MEETING OF THE HOUSE OF DELEGATES

8:00 a. m., Sept. 9, 1930

President Senger: "The House will please come to order and listen to the calling of the roll."

The roll was called by the Executive Secretary.

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*See supplement to minutes of the Sixtieth Annual Session, Constitution and By-Laws, Dec. 1, 1930, separately published.

There were twenty-two qualified delegates and alternates present, constituting a quorum.

On motion, seconded and carried, the reading of the minutes of the previous meeting was dispensed with.

President Senger called for a report from the Auditing Committee.

Dr. E. D. Downing: "We have read the report of a certified public accountant upon the books of the Treasurer and Executive Secretary, covering the past year, and to the best of our knowledge and belief the report is correct, accurate, and satisfactory. This will be all the report the Committee feels is necessary."

On motion, seconded and carried, the verbal report of the Auditing Committee was adopted.

President Senger: "The report of the Committee on Arrangements was postponed last night. Is that committee ready to report?"

Dr. W. F. Singer: "If it is satisfactory I will report verbally for the committee before the general meeting this morning and submit a brief written report later."

President Senger: "If there is no objection, Dr. Singer's suggestion for handling his report will be accepted. The next order of business will be reports of special committees which were not delivered last night. Are either the Committee on Military Affairs or the Committee on Co-operation with the Pharmacal Association ready to report?"

There being no response, the reports were temporarily passed.

Reports of reference committees were called for, but none was ready.

President Senger: "Is there any unfinished business? If not, we will proceed to new business. The Executive Secretary has some resolutions to offer."

Mr. Sethman: "I have two resolutions to present on behalf of the Executive Office."

The following resolution was then read:

RESOLUTION

BE IT RESOLVED, by the House of Delegates of the Colorado State Medical Society, that the Committee on Publication and the Executive Secretary are hereby jointly empowered to invite the Colorado Hospital Association and the Colorado Sanatorium Association to designate the official Journal of this Society as the official Journal of their said organizations; and

BE IT FURTHER RESOLVED, That the Committee on Publication and the Executive Secretary are hereby empowered to enter into verbal or written agreement with the said associations for the publication in the official Journal of this Society of such material submitted by the said associations as by agreement shall be declared suitable.

President Senger: "What will you do with this resolution?"

Dr. C. F. Kemper: "Mr. President: This is a policy that has been adopted by other state societies, other hospital associations, and it seems to have worked favorably. We have that as a precedent, and certainly it appeals to all of us as a very reasonable thing to do. Certainly, hospitalization and the organization of the medical profession are very closely tied up, and I think there is no doubt that we all are in favor of the proposition. I think the resolution simply means that we be empowered to go ahead and do it, is that correct?"

Mr. Sethman: "Yes; the resolution gives the Publication Committee and the Executive Secretary jointly the necessary power. If the resolution is adopted that will be its effect."

President Senger: "Is there any further discussion?"

There was no further discussion and on motion, seconded and carried, the resolution was adopted.

The Executive Secretary then read the following resolution:

RESOLUTION

BE IT RESOLVED: By the House of Delegates of the Colorado State Medical Society, that the Committee on Publication and the Executive Secretary are hereby jointly empowered to invite on behalf of this Society the recognized medical societies of other states in the Rocky Mountain Region to designate the official Journal of this Society as the official Journal of their societies; and

BE IT FURTHER RESOLVED: That the Committee on Publication and the Executive Secretary are further jointly empowered to execute such contracts with such other state medical societies as in the judgment of the Committee on Publication and the Executive Secretary are proper and necessary to effect establishment of a working plan for the inclusion of such additional state medical societies in the sponsorship of the official Journal of this Society.

Mr. Sethman: (continuing) "This resolution, as you see, is a furtherance of the same policy expressed in the previous resolution, that is: giving the necessary authority for expansion of the circulation and scope of Colorado Medicine. The Wyoming State Medical Society already designates Colorado Medicine as its official journal and has for several years. It has been felt possible that the Montana Society would be interested in joining in the sponsorship. Adoption of this resolution would make it possible to enter into the necessary agreements without waiting for another meeting of the House of Delegates."

On motion, seconded and carried, the resolution was adopted.

Dr. Harold T. Low submitted his resignation as a member of the Reference Committee on Reports of Committees, due to the press of other business. The resignation was accepted; and President Senger appointed in his stead Dr. T. R. Knowles.

There being no further business, on motion, seconded and carried, the House adjourned until 8:00 a. m. the following day.

THIRD MEETING OF THE HOUSE OF DELEGATES

8:00 a. m., Sept. 10, 1930

President William A. Kickland: "The House of Delegates will come to order. There appears to be a quorum present, and the Secretary will call the roll."

The roll was called by the Executive Secretary, and the President announced that twenty-four delegates were present, constituting a quorum.

On motion, seconded and carried, the House dispensed with the reading of the minutes of the previous meeting.

Reports were requested from the two special committees still not having reported: Committee on Military Affairs and Committee on Co-operation with the State Pharmacal Association. Neither were at hand.

Dr. P. J. McHugh read the report of the Refer-

ence Committee on Reports of Officers, as follows:

REPORT OF COMMITTEE ON REPORT OF OFFICERS

We, your committee, have gone over the report of your officers.

We found them very interesting and complete. We recommend their adoption.

P. J. McHUGH, Chairman.
G. C. CARY,
W. B. HARDESTY.

On motion of Dr. Bouslog, seconded and carried, the report was adopted.

Dr. T. R. Knowles read the report of the Reference Committee on Reports of Committees, as follows:

REPORT OF THE REFERENCE COMMITTEE ON REPORTS OF COMMITTEES

The Reference Committee feels that the Committee on Industrial Commission Fees should be continued and should be commended for their diligence to date.

We commend the Committee on Scientific Work for their efforts and urge earlier and greater cooperation on the part of County Secretaries in securing interesting material for the next meeting, that the programs be made as attractive as possible by securing outside speakers and that the expense connected with this be left to the discretion of the Appropriations Committee.

We are in hearty accord with all the statements and recommendations made by the Committee on Public Policy. The new life that has been injected into this Committee by the Executive Secretary's office is apparent. Especially is the confidential bulletin on candidates for public office a distinct advance. We recommend greater care in the investigation of these candidates. It has come to our attention that one of the names submitted by the Committee was antagonistic to the medical profession in previous sessions of the legislature.

The report of the Committee on Publication is very gratifying, the progress made by Colorado Medicine fully justifies the creation of the office of Executive Secretary.

The report of the Committee on Medical Education confined itself to a discussion of the problems of graduate medical instruction. We are in accord with all of its recommendations.

The report of the Committee on Social Medicine urged co-operation with anti-tuberculosis societies.

We urge adoption of the recommendations made by the Committee on Hospitals.

Our Committee recommends that the amount of an institutional membership in the Colorado Mental Hygiene Society be ascertained, before concurring in the report of the Mental Hygiene Committee.

We concur in the recommendation made by the Committee on Periodic Health Examinations that this Committee be replaced by a Committee on Medical Extension.

In keeping with the report of the Committee on the Cost of Medical Care we suggest the consideration of the advisability of the appointment of a committee on Medical Economics.

The report of the Committee on Medical Literature speaks for itself.

LORENZ FRANK, Chairman,
T. R. KNOWLES,
W. S. CHAPMAN.

It was moved and seconded that the report be adopted.

Dr. C. E. Harris moved to amend the report to the effect that the Special Committee on Periodic Health Examinations be abolished. The amendment was seconded and carried.

The original motion, as amended, was then adopted.

Dr. W. B. Yegge then read the report of the Committee on Appropriations, as follows:

REPORT OF THE COMMITTEE ON APPROPRIATIONS

Your Committee on Appropriations begs leave to submit the following budget for the fiscal year of Sept. 1, 1930, to Aug. 31, 1931:

Estimated Receipts:			
Resident Dues		$10,750	
Non-resident Dues		150	
Space Rentals		500	
Interest		350	
Publications, exclusive of dues		11,500	
			$23,250
Estimated Expense:			
General Fund			
Salaries (part of Ex. Secy.)	$ 3,000		
Rent	600		
Telephone & Telegraph	200		
Taxes	35		
Insurance	15		
Audits and bonds	175		
Travel	1,000		
Mailing & Supplies	450		
Permanent Equipment	200		
Scientific work & Exhibits	350		
House of Delegates	225		
Guests	200		
			$ 6,450
Publication Fund			
Salaries (Ex. Secy.)	$ 600		
Stenographer	1,800		
(Sc. Editor)	720		
Extra help	600		
		$3,720	
Printing and Mailing		8,500	
Supplies		500	
			$12,720
Medical Defense Fund		$ 500	
Library Fund		500	
Education Fund (Ex. Sec. salary)		600	
Committee on Pub. Pol.		400	
		$ 1,000	$21,170
			$2,080

It is recommended that the proper officers credit at the close of the fiscal year the sum of one dollar from each member's dues to the education fund, formerly known as the special fund, that the sum of two dollars of each member's dues be credited to the publication fund as subscription to the official Journal, and that from the general receipts the sums needed be credited to the other funds in accordance with the appropriations therefrom.

This budget contains the salary increases recommended by your Trustees. In spite of this a surplus of over $2,000 is estimated, compared with approximately $500 deficit for the year just closed. Several officers and delegates favor a larger increase for the Executive Secretary, but we believe it prudent to wait until cash receipts prove this budget. When that time arrives, we urge the Trustees to recompense more generously

the efficiency and energy of the Secretary both because we believe it merited and because we believe it is sound business policy to insure the Society against loss of a man of proven executive ability and loyalty.

Respectfully submitted,

W. B. YEGGE, Chairman,
H. R. McKEEN,
E. D. DOWNING.

On motion, seconded and carried, the report was adopted.

President Kickland: "It seems that by now we should have a report from the Special Reference Committee appointed to study the proposed revision of the By-Laws. Is the Committee ready to report?"

Dr. C. E. Harris: "Your Committee has a very brief report to submit."

The report follows:

REPORT OF THE COMMITTEE ON REVISION OF THE BY-LAWS

Your Committee on Revision of the By-Laws recommends adoption of the draft submitted by the Board of Trustees.

C. E. HARRIS, Chairman,
GERRIT HEUSINKVELD,
H. R. McKEEN.

It was moved and seconded that the report be adopted.

Mr. Sethman: "In order to be legal, will it not be necessary first to accept the report and then to adopt the revised By-Laws with the exception of Chapter XI, Section 1, which concerns the change of name for Colorado Medicine? There is a blank there which has not been filled."

The original motion was then amended by the maker, with the consent of the second, to accept rather than adopt the report of the committee. The motion was adopted.

On motion, seconded and carried, it was ordered that Chapter XI, Section 1, concerning the change of name of Colorado Medicine, be considered at the following day's meeting.

On motion, seconded and carried, the revision of the By-Laws was adopted with the exception of Chapter XI, Section 1.

President Kickland: "The Committee on Nominations should have a report ready at this time."

Dr. J. A. Philpott read the report of the committee, as follows:

REPORT OF COMMITTEE ON NOMINATIONS

Your Committee on nominations wishes to submit as its report the following nominations for elective offices to be filled at the Sixtieth Annual Session:

For President: Edward Delehanty, Denver.

For First Vice President: E. D. Downing, Woodmen.

For Second Vice President: George M. Noonan, Walsenburg.

For Third Vice President: I. L. Gotthelf, Saguache.

For Fourth Vice President: F. W. Lockwood, Fort Morgan.

For Secretary for a three-year term: C. S. Bluemel, Denver.

For Delegate to the A. M. A. for a two-year term: John W. Amesse, Denver.

For Alternate to the A. M. A. for a two-year term: George W. Miel, Denver.

For Councillor of District No. 1 for a five-year term: Ella A. Mead, Greeley.

For Member of the Publication Committee for a three-year term: C. F. Kemper, Denver.

For the place of the Sixty-first Annual Session: Colorado Springs, Colo.

For the time of the Sixty-first Annual Session: Early in September, 1931, the exact dates to be fixed by the Committee on Scientific Work.

JAMES A. PHILPOTT, Chairman,
HAROLD T. LOW,
G. C. CARY,
WALTER S. CHAPMAN,
A. C. HOLLAND.

On motion, seconded and carried, the report was accepted.

President Kickland: "I will remind you that under the By-Laws, nominations may be made from the floor at any time until the election tomorrow morning."

Dr. George W. Miel: "Mr. President: I wish to withdraw my name from nomination as Alternate Delegate to the American Medical Association. It would be impossible for me to attend the national meeting in case the regular delegate could not go, and I believe someone should be nominated who could attend."

President Kickland: "Dr. Miel's statement will be called to the attention of the committee. As there is no unfinished business, new business is in order. This is the last opportunity under the By-Laws for the introduction of new business, except by consent of a two-thirds majority, so if any one has any new business, please present it now."

Mr. Sethman then presented three resolutions, as follows:

RESOLUTION

BE IT RESOLVED, By the House of Delegates of the Colorado State Medical Society, that the publication in the name of the Society of a compendium of legal information for the membership of the Society is hereby approved; and

BE IT FURTHER RESOLVED, That the Executive Secretary and the Committee on Publication be jointly empowered to publish such a compendium at such time as in their judgment is appropriate and financially possible, said compendium to include such editorial matter and advertising as in their judgment is appropriate to an official publication of this Society.

RESOLUTION

WHEREAS, By the establishment of a master policy of physicians' liability insurance for the Colorado State Medical Society a substantial reduction in liability insurance premiums paid by individual members of the Society in many parts of the state may be effected; and

WHEREAS, Many of the constituent societies at present hold master policies with the Aetna Life Insurance Company; now therefore

BE IT RESOLVED: By the House of Delegates of the Colorado State Medical Society, that the establishment of a master policy of physicians' liability insurance with the Aetna Life Insurance Company is hereby approved, existing master policies of constituent societies to be included as units of said master policy under the rules of the said company; and

BE IT FURTHER RESOLVED: That the Executive Secretary of this Society is hereby designated Trustee of the said master policy subject to the rules of the said company and subject to removal by the Board of Trustees of this Society; and

BE IT FURTHER RESOLVED, That the Colo-

rado State Medical Society by this resolution in no way assumes any financial or other obligation or liability to the said company other than a willingness of the Society to co-operate in the management of the said policy in such manner as is approved by the Board of Trustees of this Society.

RESOLUTION

BE IT RESOLVED, By the House of Delegates of the Colorado State Medical Society, that the publication in the name of this Society of a History of Colorado Hospitals and Sanatoria is hereby approved; and

BE IT FURTHER RESOLVED, That the Committee on Publication and the Executive Secretary are hereby jointly empowered to publish the said history at such time as is in their judgment appropriate and financially possible, such publication to include such editorial material and advertising as is in their judgment appropriate to an official publication of this Society.

Mr. Sethman: (continuing) "In view of the late hour, perhaps it would be better to consider these resolutions tomorrow, under unfinished business at that session."

President Kickland: "If there is no objection, it will be so ordered."

Dr. Maurice H. Rees: "Mr. President: Your School of Medicine and Hospitals has felt for some time that we should have an advisory committee from the Colorado State Medical Society. The institution has now grown to such proportions that it brings up a great many problems that are definitely connected with the Society and the men throughout the state. We feel it would be of great benefit to us and to the men throughout the state if we could have some sort of committee to act in an advisory capacity to the School of Medicine. The executive faculty of the school joins me in this request. If my suggestion is carried out, it might be well to have a member from each county society, but appointed through this Society. We are eager that the committee have official connection with the Colorado State Medical Society, and I present this matter to you that you may be able to see our point, and be willing to help us to the extent of appointing such a committee."

President Kickland: "A motion will be in order to appoint such a committee, but perhaps it would be better to lay the matter over until tomorrow morning."

Dr. H. G. Garwood: "In view of the lateness of the hour, I move, Mr. President, that this matter be disposed of tomorrow morning."

The motion was duly seconded and carried.

On motion, seconded and carried, the House adjourned until 8:00 a. m. the following day.

FOURTH MEETING OF THE HOUSE OF DELEGATES

8:00 a. m., Sept. 11, 1930

President Kickland called the House to order and directed that the roll be called.

The Executive Secretary called the roll and the President announced that thirty-three delegates were present, constituting a quorum.

On motion, seconded and carried, the House dispensed with reading the minutes of the previous meeting.

President Kickland: "The election of officers for the ensuing year is the next order of business. I will ask that the report of the Committee on Nominations be re-read at this time."

The Executive Secretary again read the report of the Committee on Nominations, and announced that the committee had a supplement to offer.

Dr. James A. Philpott: "Your committee has two additional reports to make. One of these is due to the wish of Dr. Miel in declining the nomination for alternate. Since then Dr. Bluemel has found it necessary to decline the nomination for Constitutional Secretary. I will read the reports."

SUPPLEMENT TO THE REPORT OF THE COMMITTEE ON NOMINATIONS

Your Committee on Nominations wishes to submit a supplemental and amendatory report as follows:

Due to the desire of Dr. George W. Miel of Denver to withdraw his name from nomination as alternate to the American Medical Association, your Committee submits in his stead the name of Dr. William C. Bane of Denver.

JAMES A. PHILPOTT, Chairman.

Your Committee on Nominations wishes to supplement and amend its original report as follows:

Dr. C. S. Bluemel has informed this committee that it will be impossible for him to accept the office of Constitutional Secretary of this Society and has asked for withdrawal of his name.

We therefore wish to present in his stead the name of Lorenz W. Frank of Denver for the office of Constitutional Secretary.

JAMES A. PHILPOTT, Chairman.

On motion, seconded and carried, the supplemental reports were accepted.

President Kickland: "Are there any nominations from the floor before we proceed to ballot? The By-Laws require a secret ballot unless no more than one has been nominated for each office."

There being no further nominations, on motion, seconded, and carried, the nominations were declared closed.

Dr. C. F. Kemper: "Mr. President: Since just one person has been nominated for each position, I wish to move that the secretary be directed to cast the unanimous ballot for each of the officers as presented by the Committee on Nominations."

The motion was duly seconded and was carried unanimously by rising vote.

President Kickland: "Are there any committees which have failed to make their reports,"

The Executive Secretary then read the report of the Committee on Military Affairs, in the absence of all members of the committee, as follows:

REPORT OF THE COMMITTEE ON MILITARY AFFAIRS

Your Committee had the very pleasant duty of arranging for the entertainment of the Annual Meeting of the Association of Military Surgeons of the United States which met in Denver the last week of September, 1929. A large number of high ranking medical officers of the army, navy, United States Public Health Service, National Guard and their respective reserves, including Admiral Charles Riggs, Surgeon General, United States Navy, were present.

Medical officers of England, China, Greece, Italy, Peru and Mexico represented their respective countries as delegates.

Your Committee wishes to again thank the members of the State Society for their generous aid and deeply appreciates their many kindly courtesies at that time.

Members of the Committee were instrumental in completing the organization of a Base Hospital Unit of the United States Naval Reserve in Denver, five such units being authorized for the Twelfth Naval District of which Colorado is a part.

The Denver Unit was the first organization

to be completed and accepted by the Naval department.

A communication accompanied by a resolution passed by the Minnesota State Medical Society at their last annual meeting requested this Society to take such action as they saw fit upon the same or a similar resolution.

This resolution requests the Surgeon General and the Chief of Staff of the United States Army to modify the regulations which now control the Chief and Assistant Chief of Departments of Reserve Base Hospital Units so that they may not be required to take fifteen days annual training duty in order to retain their commissions with assignment to organize Reserve Units.

This is a matter which in our opinion the Surgeon General of the United States Army is much better qualified to determine than the civilian practitioner.

Your Committee recommends this Society does not offer unsolicited advice to the Surgeon General and that the request of the Minnesota State Medical Society be denied.

Respectfully Submitted,
G. P. LINGENFELTER, Chairman,
PAUL IRELAND.

On motion, seconded and carried, the report was adopted without reference to a reference committee.

President Kickland: " We still have not heard from the Committee on Co-operation with the State Pharmacal Association. Is any member of the committee in the house?"

There being no response, and no report on the desk, the report was ordered passed for the session.

The Executive Secretary announced that nothing had been referred to the Reference Committee on Miscellaneous Business, and the President directed that no report from the committee would be required.

President Kickland: "Unfinished business is in order. The first on the desk concerns the change of name of Colorado Medicine in the new By-Laws."

Dr. Frank Rogers: "Mr. President: The time may be approaching rapidly when it will be necessary or desirable to change the name of Colorado Medicine. Various names have been proposed, and I would suggest that we add one or two more to that list—Rocky Mountain Medical Journal, for instance—and others, undoubtedly, will have additional names to suggest. I do not think it is imperative that we act on that and decide on the name at this time. I think we can give the authority to a suitable committee, to act in our stead.

"I therefore move, Mr. President, that the matter of changing the name of Colorado Medicine under the new By-Laws be referred to a joint committee composed of the Board of Trustees and the Committee on Publication."

The motion was duly seconded.

Dr. W. B. Yegge: "I would like to amend the doctor's motion by adding 'with power to act,' to his wording of the motion. There is no reason why we should let this go a year or two. This joint committee should be given the power to act and we should let them go ahead."

Dr. Rogers: "I understood it myself that the joint committe should have power to act. I will gladly accept the amendment."

The amendment was also accepted by the second.

Dr. F. B. Stephenson: "Mr. President: The way the By-Laws now stand, this particular section is incomplete. We ought to have a wording for it and adopt it so that the By-Laws may be adopted as a whole. Would it not be a good idea to have the Executive Secretary word this section so that it would authorize the change in name at such time as is deemed advisable; and when that time may arrive let the Trustees and the Publication Committee have the necessary authority to decide the question? Then this section can be immediately worded to that effect."

Dr. Yegge: "I know that a number of men hate to see our journal lose the name 'Colorado.' Of course, it seems that the time has come when we will have to change the name, but after all these years I and others hate to see lost the identity of the word 'Colorado.' Perhaps it would be possible to retain that name in some way."

Mr. Sethman: "It has been suggested that I dictate a legal wording for this section to the reporter. If this would be satisfactory, Dr. Rogers could include it in his motion."

Dr. Rogers: "I will accept that with the consent of my second."

Mr. Sethman then dictated the following wording for Chapter XI, Section 1, of the revised By-Laws:

Chapter XI—Official Journal

Section 1. The Society shall publish monthly an official Journal under the title "Colorado Medicine;" Provided, however, that the Board of Trustees and the Committee on Publication shall be jointly empowered to change this title at such time as in their judgment is appropriate.

Dr. Rogers: "That wording is perfectly satisfactory to me. I will amend my motion to the effect that we adopt this wording as the section of the new By-Laws instead of deciding on the name at this time."

The amendment was accepted by the second, was put to a vote, and carried.

President Kickland: "A motion will be in order now to adopt the revised and amended By-Laws as a whole."

Dr. Rogers made the motion, which was seconded, and carried unanimously.

President Kickland: "The motion is carried unanimously and the revised By-Laws are declared adopted."*

"There are three resolutions on the desk left from yesterday as unfinished business."

The resolution concerning publication of a compendium of legal information was re-read by the Executive Secretary. The Executive Secretary described at length the Medical Blue Book published by the Wisconsin State Medical Society, to which the proposed publication would be similar.

President Kickland: "You have heard the resolution on a legal publication. What will you do with it?"

On motion, seconded and carried, the resolution was declared adopted.

The resolution concerning establishment of a master policy of physicians' liability insurance was re-read by the Executive Secretary, and described at length.

Dr. R. S. Johnston: "I move the adoption of the resolution. It would not be a bad idea to include the U. S. Fidelity and Guaranty Company, because it gives a chance to the physicians to take advantage of better rates with both companies. I would like to incorporate that in my motion in some way."

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*See supplement to minutes of the Sixtieth Annual Session, Constitution and By-Laws, Dec. 1, 1930, separately published.

Mr. Sethman: "The easiest way to amend the resolution would be to insert a paragraph giving the Board of Trustees power to approve the policies of additional companies."

Dr. Johnston: "I will accept that."

The resolution was then re-written to read as follows:

RESOLUTION

"Whereas, by the establishment of a master policy of physicians' liability insurance for the Colorado State Medical Society a substantial reduction in liability insurance premiums paid by individual members of the Society in many parts of the state may be effected; and

Whereas, many of the Constituent Societies at present hold master policies with the Aetna Life Insurance Company; now, therefore,

Be It Resolved, by the House of Delegates of the Colorado State Medical Society, that the establishment of a master policy of physicians' liability insurance with the Aetna Life Insurance Company is hereby approved, existing master policies of Constituent Societies to be included as units of said master policy under the rules of the said company; and, be it further

Resolved, That the establishment of similar master policies of physicians' liability insurance with such other insurance companies as may be from time to time approved by the Board of Trustees of this Society is hereby approved; and, be it further

Resolved, That the Executive Secretary of this Society is hereby designated Trustee of the said master policy or policies, subject to the rules of the said insurance company or companies and subject to removal by the Board of Trustees of this Society; and, be it further

Resolved, That the Colorado State Medical Society by this resolution in no way assumes any financial or other obligation or liability to the said company or companies other than a willingness of the Society to co-operate in the management of the said policy or policies in such manner as is approved by the Board of Trustees of this Society."

Dr. Johnston: "I move that the resolution as amended be adopted."

The motion, seconded, was duly carried and the resolution declared adopted.

The resolution concerning publication of a history of Colorado hospitals and sanatoria was reread by the Executive Secretary, and described at length.

On motion by Dr. Kemper, seconded and carried, the resolution was declared adopted.

Dr. Kemper: "We have the suggestion by Dr. Rees regarding the appointment of an advisory committee to the State Medical School and Hospital. I move its adoption."

The motion was duly seconded and carried.

Dr. F. B. Stephenson: "I think we should prepare a resolution expressing the sincere thanks of the Society to the Committee on Arrangements for the fine and varied entertainment they have given us at this session."

President Kickland: "I will ask the Secretary to prepare a resolution to that effect."

The resolution was drawn as follows:

RESOLUTION

Whereas, This, the Sixtieth Annual Session of the Colorado State Medical Society has been made one of the outstanding sessions in the history of the Society and has been noted throughout for the excellence and generosity of entertainment provided by our local members; now, therefore, be it

Resolved, By the House of Delegates of the Colorado State Medical Society, that the thanks and appreciation of the Society go out to our Committee on Arrangements, Drs. W. F. Singer, chairman; Royal H. Finney, Harold T. Low and George E. Rice, and to the many others who have assisted them, for the time, thought, and energy they have devoted toward making this Session an outstandingly successful and enjoyable occasion.

On motion, seconded and carried unanimously, the resolution was declared adopted.

Dr. C. F. Kemper: "In reports of the Committee on Public Policy at recent annual meetings, it has been suggested that inasmuch as the deliberations of this body are always hurried, and since the most important business that ever comes before this body is that of medical legislation, a special meeting of the House of Delegates should be called on the eve of the meeting of the Colorado General Assembly, to consider the problems that our Executive Secretary and our Committee on Public Policy might want to law before the legislature. To me, that is the most important thing that this House of Delegates can do—have a meeting in some central part of the state the last week in December or the first week in January, so that we might go into our legislative battles with a solid front. I realize that it has already been decided that this will be done this winter. I speak of it now merely to remind you all of its importance to the profession and to remind you to hold yourself in readiness to attend such a special meeting."

On motion, seconded and carried, the House of Delegates was declared adjourned, sine die.

PROCEEDINGS OF THE GENERAL MEETINGS*

9:00 a. m., Sept. 9, 1930

President William Senger called the meeting to order at 9:00 a. m.

President Senger: "The Sixtieth Annual Session of the Colorado State Medical Society will now come to order. There is a slight change in the program which I know you all will appreciate. It is customary in Colorado conventions that an address of welcome be delivered by the mayor, the sheriff, or someone connected with government institutions. We are going to digress from the usual custom, and we have asked a woman to make the address of welcome to you today, a woman whom we all respect for her many accomplishments and her charming personality—Mrs. C. W. Crews, president of the Child Welfare Association of Pueblo."

Mrs. C. W. Crews: "Mr. President and Gentlemen: I come to you as president of the Child Welfare and Public Health Association of Pueblo. I want to thank you for the high honor that has been accorded to me of bringing to you a word of welcome. Pueblo is honored by your coming here, and I am sure that the County Medical Society is happy in having you as guests.

"The urge to do noble deeds, dreaming of them all day long, is foremost in the young. The mys-

*Addresses, papers, and discussions which formed part of the scientific proceedings of the General Meetings and which have not already been published in this and preceding issues, will be published in succeeding issues of Colorado Medicine.

tery and the adventure of life, its preservation and the relief of its suffering, appeal to us all. The arm of the medical world enlisted early in life in the service of helpfulness, and brought with it the cheer and enthusiasm that makes the doctor's presence in the sickroom of greater value oftentimes than his medicine. Why is the doctor such a welcome visitor when we are ill, or think we are? The doctor proceeds to create an atmosphere of cheerfulness. Doctors are optimists, and their ounce of prevention is always loaded with a pound of cheer. The helplessness of the child appeals to us all. To that appeal, the doctor unconsciously follows the great Master in saying, 'Suffer the little children to come unto Me;' and so we have found them ever doing and giving. A doctor once said to me: 'The best returns I have had out of life are those received from the people I have helped; I have nothing but appreciation to give in return.'

"We are glad of this opportunity to express our deep appreciation to this devoted body of lifesavers in this city, and to our own County Medical Society, without whose aid our work must have fallen by the wayside. They have given, as you all do, loyal and willing service, without hope of remuneration. I thank you." (Applause.)

President Senger: "Mrs. Crews, on behalf of the Society, I wish to thank you.

"As your Past President, which I will be in a few seconds, I want to thank you for your loyalty and your co-operation throughout the last year. I believe that the Society has made considerable progress, and my best wish for the incoming President, is that he may have the same support I received from you, individually and collectively.

"It is now a very great pleasure to appoint two of our Past Presidents, Drs. Freeman and Boyd, to act as an escort to Dr. William A. Kickland, of Fort Collins, to bring him to the rostrum to be installed as President of the Society for the coming year. (Applause.)

"Dr. Kickland, my best wish for you is that you may have support such as I have received from this Society."

Dr. Kickland: "I thank you very much.

"Mr. President and members of the Society: I appreciate more than I can express this honor of being allowed to preside at this Sixtieth Annual Anniversary of the Colorado State Medical Society. I appreciate the honor on behalf of Northern Colorado, the part of the state in which I happen to practice, and I wish to thank all of you who have been instrumental in giving me this privilege.

"I think perhaps it is fitting at this time, at this, the first session of our convention, to pause for a moment and pay our respects to one, a former President of this Society, and a Dean in Colorado surgery, who has gone to the Great Beyond. We all miss his genial smile and hearty handshake. I wish to pay my respects to Dr. Richard W. Corwin; and I think it would be fitting for the Society to stand for just a moment in his memory and honor.

(At this time the members all arose.)

President Kickland (continuing): "Thank you very much. Dr. Singer, the Chairman of the Entertainment Committee wishes to make an announcement."

(Announcements made by Dr. Singer, Chairman of the Entertainment Committee.)

President Kickland (continuing): "The President's troubles are beginning early. We have about one hundred and thirty minutes between now and the time for our intermission. Each man on the program is asking for a little more time to present his paper. We have to finish in time to have our intermission and get back at about ten minutes of twelve in order to listen to our guest speaker. The first paper on the program is by Dr. Lowell Little, of Fort Collins, on the subject of "Pre and Postoperative Care of Surgical Cases."

The scientific program was then begun, papers and discussions being presented in the following order:

"Pre and Postoperative Care of Surgical Cases," read by the author, Lowell Little, M.D., Fort Collins; discussed by Dr. Nolie Mumey and by the author, in closing.

"Symposium on Postoperative Lung Complications with Special Reference to Atelectasis,"* read by the authors, as follows: (a) "Physiology of Pulmonary Atelectasis," Henry Sewall, M.D., Denver; (b) "Pathology of Atelectasis and Its Relation to Pulmonary Infections," William C. Johnson, M.D., Denver; (c) "X-Ray Diagnosis of Postoperative Lung Complications with Special Reference to Atelectasis," Kenneth D. A. Allen, M.D., Denver; (d) "Atelectasis: Its Clinical Signs, Symptoms, Differential Diagnosis and Treatment," W. Bernard Yegge, M.D., Denver; (e) "Treatment of Atelectasis," Paul J. Connor, M.D., Denver; (f) "Bronchoscopic Diagnosis and Treatment of Massive Atelectasis," T. E. Carmody, M.D., Denver. Discussed by Drs. Leonard Freeman and C. E. Tennant.

There followed a ten-minute intermission.

The scientific program was then resumed, as follows:

"Recent Accomplishment and Future Prospect in Tuberculosis Research," read by the author, Esmond R. Long, M.D., Chicago; discussed by Dr. J. J. Waring and by the author, in closing.

The meeting then adjourned until 9:00 a. m. the following day.

8:00 p. m., Sept. 9, 1930

PUBLIC MEETING

The evening meeting, open to the general public, was held in the auditorium of the Centennial High School, Pueblo.

The meeting was called to order by Dr. W. F. Singer, chairman of the Committee on Arrangements, who introduced Past Presidents of the Society on the platform with the speaker of the evening, Hubert Work, M.D.

Dr. Work addressed the meeting on "The Physician Himself."

The meeting then adjourned.

9:00 a. m., Sept. 10, 1930

The meeting was called to order by President Kickland.

The scientific program was then begun, papers and discussions being presented in the following order:

"The Indications for Ganglionectomy and Trunk Resection in the Treatment of Peripheral Vascular Diseases,"† presented by the author, Alfred W. Adson, M.D., Rochester, Minn.; discussed by Drs. O. M. Gilbert, James R. Jaeger, Leonard Freeman, and by the author, in closing.

"The Present Status of Spinal Anesthesia,"† read by the author, Clyde J. Cooper, M.D., Denver,

*Published, with discussions, in the November, 1930, issue of Colorado Medicine.

†Published, with discussions, in this issue of Colorado Medicine.

and "General Considerations of Spinal Anesthesia," read by the author, Edwin G. Faber, M.D., Denver; discussed by Dr. William Spitzer.

"Efficient Fracture Support," read by the author, George W. Miel, M.D., Denver; discussed by Dr. J. S. Norman and by the author, in closing.

"The Effect of General Anesthesia on Arrested Cases of Moderately Advanced Pulmonary Tuberculosis," read by the author, Roy L. Gleason, M.D., Fort Collins; discussed by Drs. O. M. Gilbert, Leonard Freeman, J. N. Hall, and by the author, in closing.

"Vertigo Due to Errors of Refraction," read by the author, William C. Bane, M.D., Denver; discussed by Dr. J. N. Hall.

The meeting then adjourned until 2:00 p. m. the same day.

2:00 p. m., Sept. 10, 1930

Dr. John B. Crouch, First Vice President, called the meeting to order and introduced President Kickland, who then delivered his presidential address, as follows:

"Some Problems in Medical Economics,"† read by the author, W. A. Kickland, M.D., Fort Collins, President of the Colorado State Medical Society. (No discussion.)

President Kickland then assumed the chair.

The scientific program was then resumed, papers and discussions being presented as follows:

"Diabetes and the Country Doctor," read by the author, Charles H. Platz, M.D., Fort Collins; discussed by Drs. C. F. Kemper, E. D. Burkhard, and by the author, in closing.

"Ophthalmia Neonatorum," read by the author, C. A. Ringle, M.D., Greeley; discussed by Drs. J. J. Pattee, W. C. Finnoff, Gerrit Heusinkveld, O. C. Wise, and by the author, in closing.

"Practical Obstetrics Outside of the Hospital," read by the author, Carbon Gillaspie, M.D., Boulder; discussed by Drs. Gerrit Heusinkveld, Lowell Little, E. D. Burkhard, and by the author, in closing.

"Is the Present Public Health Program Adequate?" read by the author, C. E. Harris, M.D., Woodmen; discussed by Drs. C. O. Giese, L. W. Bortree, J. Rosslyn Earp, and by the author, in closing.

"The Eyes in Aviation," read by the author, John S. Chase, M.D., Denver; discussed by Drs. W. C. Finnoff, W. A. Sedwick, J. J. Pattee, and by the author, in closing.

The meeting then adjourned until 9:00 a. m. the following day.

9:00 a. m., Sept. 11, 1930

President Kickland called the meeting to order and announced that the first order of business would be presentation of the annual report of the Committee on Necrology.

The report was read by Mr. Harvey T. Sethman, Executive Secretary, as follows:

REPORT OF THE COMMITTEE ON NECROLOGY

During the past year, whenever your Committee on Necrology has had timely notice of the death of a member of this Society, it has sent a letter of condolence to his family. It has also written, or had written by friends of decedents, short biographical notices for Colorado Medicine.

In presenting the names of those who have died since our last meeting it would have been agreeable to your committee to comment on the conspicuous attainments and personal qualities of some of them. But to choose from among those recently dead is as delicate a task as to choose from the living. Whatever may have been their comparative merits while among us, they are now equal. They have joined the vast democracy of the dead. Your committee leaves judgment, then, to the several members of the Society, tempered as it is and made just by the sorrow of our losses.

And now, as each year we must, we solemnly present the roll of those who no longer answer to their names.

Dr. James Allen Patterson, Colorado Springs, Colo., November 27, 1929.

Dr. Rice Kemper McClanahan, Colorado Springs, Colo., January 14, 1930.

Dr. David H. Coover, Denver, Colo., January 10, 1930.

Dr. Carroll Everett Edson, Denver, Colo., January 18, 1930.

Dr. John Harvey Bush, Boulder, Colo., February 4, 1930.

Dr. Lemon Gibbs Clark, Glenwood Springs, Colo., March 1, 1930.

Dr. John William Morgan, Denver, Colo., February 22, 1930.

Dr. Harold Clifford Lane, Denver, Colo., March 20, 1930.

Dr. John William Higgins, Denver, Colo., June 14, 1930.

Dr. Isaac B. Perkins, Denver, Colo., November 7, 1929.

Dr. Ralph G. Hersom, La Junta, Colo., September 20, 1930.

Dr. H. C. Lee, Trinidad, Colo., January 12, 1930.

Dr. J. Nicoll Vroom, Denver, Colo., August 2, 1930.

Dr. George Wm. Robinson, Trinidad, Colo., September 17, 1929.

Dr. Joseph B. Finucane, Denver, Colo., ----------, 1930.

C. S. ELDER, Chairman,
G. C. CARY,
LEE T. RICHIE.

President Kickland then called upon the Executive Secretary to present a summary of the proceedings of the House of Delegates*

President Kickland then installed the new officers of the Society for the year by introducing each officer in turn to the meeting.

The scientific program was then begun, papers and discussions being presented in the following order:

"Treatment of Cancer of the Lower Lip," read by the author, Ellis Fischel, M.D., St. Louis, Mo. (No discussion.)

"Coronary Thrombosis," read by the author, Clough T. Burnett, M.D., Denver; discussed by Drs. William Gerry Morgan, Washington, D. C., President of the American Medical Association; Royal H. Finney, O. M. Gilbert, W. C. Howell, and by the author, in closing.

"Causes of Fever in Cancer," read by the author, William A. Campbell, Jr., M.D., Colorado Springs; discussed by Drs. M. O. Shivers, R. H. Finney, and by the author, in closing.

†Published in the October, 1930, issue of Colorado Medicine.

*See Minutes of the House of Delegates, published in this issue of Colorado Medicine.

"Infant Feeding Suggestions for the General Practitioner,"* read by the author, F. P. Gengenbach, M.D., Denver; discussed by Drs. J. H. Woodbridge, John W. Amesse and by the author, in closing.

"The Relationship between the Physician and the Health Department," presented by the author, C. E. Waller, M.D., Washington, D. C.; discussed by Drs. J. W. Amesse, J. Rosslyn Earp, E. D. Burkhard, and by the author, in closing.

"Direct Infiltration; A Method of Local Anesthesia in Tonsillectomy," read by the author, Fred J. Peirce, M.D., Pueblo; discussed by Drs. Harold L. Hickey, J. J. Pattee, and by the author, in closing.

"Physical and Mental Changes Following Skull Injuries," read by the author, Leo V. Tepley, M.D., Denver; discussed by Dr. Edward Delehanty and by the author, in closing.

President Kickland then announced the Sixtieth Annual Session adjourned, sine die.

Registration: Members, 323; Visitors, 8; Guests, 4; Exhibitors, 11; Total, 346.

HARVEY T. SETHMAN,
Executive Secretary.

* * *

BOARD OF COUNCILLORS

Annual Meeting

The Annual Meeting of the Board of Councillors was called to order by the chairman, Dr. Ella A. Mead, at the Congress Hotel, Pueblo, September 10, 1930.

The Board approved the Annual Report of the Council submitted to the House of Delegates by the chairman.

The Board approved new sections of the revised By-Laws, designed to eliminate controversy over the right of members to retain membership in a constitutent society while transfering to another constituent society.

The Board considered an informal complaint from Huerfano County concerning newspaper publicity, but voted that no disciplinary action be taken unless further complaint be lodged charging the physicians involved with having willfully brought about the publicity.

The Board elected Dr. W. W. Crook of Glenwood Springs as chairman for the ensuing year.

The Board adjurned subject to call of the chairman.

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*Published. with discussions, in the October, 1930, issue of Colorado Medicine.

MEDICAL SOCIETIES

This department of Colorado Medicine is set aside for reports of recent meetings, announcements of future meetings and accounts of other important activities of the county and district societies, composing the Colorado State Medical society. Every meeting of every local society should be reported. If your society is not represented, see that your secretary reports the next one, or that some other member is appointed to the task. Other societies want to know what your society is doing.

Boulder County Medical Society

"The Significance of Mematuria," an interesting and instructive paper illustrated with lantern slides, was delivered before the November meeting of the Boulder County Medical Society by Dr. Harry H. Wear of Denver. The meeting, preceded by a dinner, was held at the Boulderado Hotel in Boulder, November 13. Dr. H. A. Green of Boulder opened the discussion of Dr. Wear's paper and was followed by many members of the Society.

MARGARET L. JOHNSON, Secretary.

* * *

El Paso County Medical Society

Two papers were delivered at the November meeting of the El Paso County Medical Society, held in the Colorado Springs Day Nursery. Dr. E. J. Brady addressed the Society on "Dementia Praecox and Allied Psychoses," and Dr. G. B. Gilmore talked on "The Physician's Relations with the Coroner's Office." Both papers evoked general discussion.

CARL S. GYDESEN, Acting Secretary.

* * *

San Luis Valley Medical Society

The regular meeting of the San Luis Valley Medical Society was held at Alamosa, November 15, beginning with a dinner at 7 p. m. at the Grand Cafe. Dr. R. W. Arndt of Denver was the principal speaker on the scientific program, talking on "Present-Day Topics in General Medicine." Dr. A. S. Cecchini of Denver followed with an informal talk on "New Developments in Minor Surgery." In addition Dr. Arndt outlined a series of practical questions to the members of the Society, and a general discussion followed.

Dr. L. L. Herriman of Alamosa will have charge of the next program, to be held early in December at a date to be determined later. It was announced that $300 has been appropriated for the Children's Mental Hygiene Clinic, to be conducted in Alamosa in conjunction with the Psychopathic Department of the University of Colorado School of Medicine and Hospitals. Several counties have not yet reported their appropriations.

SIDNEY ANDERSON, Secretary.

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE AND HOSPITALS

The School of Medicine has been under way since the last days of September. All the classes are in full swing and the freshmen are learning the routine which lies ahead of them for the next four years. The seniors are concerned with internships for their next year's work, and are seeking appointments in institutions widely scattered over the country. While this school does not require an internship before the degree of Doctor of Medicine is given, as is the case with a few of the schools, the diploma may be with-held unless the student definitely shows that he has an appointment in an accredited hospital and expects to serve. In the past five years, with one or two exceptions, all students have had an internship following graduation.

This year, for the first time, all classes are filled to capacity. The medical school equipment was designed originally to care for fifty in each class. Arrangements made later allowed the freshmen class to be enlarged to sixtyfive. So the first-year class this year has this number, and the other three years have fifty each.

A larger number of freshmen are enrolled that the group remaining at the end of the year will fill the next year's class. Past records have shown that the sixty-five originally admitted will have shrunk to approximately fifty by the next year.

This School of Medicine is an integral part of the State University: The University of Colorado. Like the other units of the University its first duty is concerned with the training of its own citizens. But its situation is also peculiar in that this is the only School of Medicine with a complete course between the Missouri River and the Pacific Coast. So it feels duty bound to care for medical instruction in this area so far as possible. And with the other four-year schools it must absorb into its ranks many students from the two-year schools, who must seek their junior and senior years elsewhere. Its interest cannot be wholly limited to the confines of the state.

Preference is given first to students from schools within the state. The State University first, then the other school. The quota can then be filled from the desirable applicants outside the state. Scholarship, personality and ambition are factors considered in choosing members of the entering class, and also for the higher classes. This selection is possible when an average of four to five applications are obtained for each appointment made. As a result of this selection there has been a definite improvement in the personnel of the classes in the past ten years; a more serious, stable, high minded and studious group. These students as they graduate should reflect increasing credit on the profession. A small number of young women are also members of the various classes, and they constitute a part of their respective groups, and are not segregated as was the custom in some schools in the past. A study of the several classes will show many students who were honor men in college and who are ranking men in their present work.

Accusations of racial discrimination are always present in university circles, and this School of Medicine is no exception. Articles have appeared in the past with arguments pro and con, with however, no alteration in the procedure of selection. Perhaps in some privately endowed schools such discrimination does exist, but it should not exist in State Universities. It does not exist in this school. The Jewish race has perhaps been more often mentioned than any other.

Two rather recent articles are of interest, presenting as they do opposite views of different men, and dealing with medical schools. Dr. Frank Gavin, a professor in the General Theological Seminary, decries the fact that 600 Jewish men were turned down by various medical schools in this country. Thirty eventually gained entrance in schools abroad. He states that some tried as many as forty-six schools, and all tried

at least five. He further says that while the quota system may be excusable in undergraduate schools, it should not enter in those dealing with professional training. Apparently it is three times as hard for a Jew to gain entrance to a medical school as for a Gentile.

Quite opposite views are expressed by Dr. A. J. Rongy a Jewish physician. He contends that the medical schools have been more than fair to the Jews. His figures show approximately 20 per cent of the medical students are Jewish, but this race constitutes only three and a half per cent of the entire population. Thus these students constitute a body six times their quota, based on actual population.

He further states that "instead of being discriminated against, every Jewish student of proper competence and talent can eventually succeed in entering the doors of almost any medical school in this country."

In the present freshman class approximately 10 per cent are Jewish. This percentage is higher in the classes of the next two years; sophomore class 16 per cent; junior class, 14 per cent. The senior class contains the same per cent as the first year. This year, however, it would have been possible to have filled the entire freshman class with Jewish men from one state alone.

Twenty per cent of the present freshmen class are non-residents. Since these students must pay a much higher tuition fee than residents, they often establish residency in this state as soon as feasible. So the upper classes often show a lower percentage. These figures show that the Jewish race is well represented, and that the students of this state have the preference in this School of Medicine.

WOMAN'S AUXILIARY

LARIMER COUNTY

Organized in June, 1930, the Larimer County unit reported a 100 per cent membership at the annual state convention in Pueblo. An "Acquaintance Tea" August 21st was held at the home of the President, Mrs. T. Clarkson Taylor. Constitution and By-Laws were adopted according to rules of the national and state auxiliaries. Quarterly meetings will be held during the year.

* * *

Officers
1930-1931

President ..... Mrs. T. Clarkson Taylor
Fort Collins
Vice President ..... Mrs. M. S. Stewart
Loveland
Secretary-Treasurer ..... Mrs. Thad C. Brown
Fort Collins
Parliamentarian ..... Mrs. P. J. McHugh
Fort Collins

Advisory Council

Dr. V. E. Cram Dr. M. J. Stewart
Dr. W. A. Kickland

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* * *

SUGGESTIONS FOR EDITORS

Write each County Auxiliary president asking her co-operation with us, sending us monthly reports of their meetings.

Your State President will send you the names and addresses of all County Presidents and Secretaries.

Enclose in your letters, copies of both questionnaires. One for the County President to answer; the other for her to have typed and mailed to each member of the Auxiliary. This will help us to obtain some valuable statistics and data even though we may not publish it this year.

Mail a postal card on the first of each month to the Secretaries of County Auxiliaries reminding them of the importance of having all reports in before the tenth of the month. Ask them to write even though they may not have the full report. Let them form the habit of writing regularly.

Send your reports to the National Chairman not later than the fifteenth of each month. If you have no report, write anyway. She would like to hear from you. These reports will be condensed and sent to State Medical Journals with the hope that they will be published. This will keep us in touch with our own state and the activities of all organized states.

The American Medical Association has given us space in its bulletin and we must urge all Auxiliary members to read it. We may inspire other states to organize auxiliaries also.

Send in clippings from newspapers that would be interesting to physicians' wives. Refer to interesting magazine articles, giving names and dates.

Please send your chairman suggestions. We want our department to be successful.

Address, after September 25th, will be: Mrs. John O. McReynolds, 307 Maple Terrace, Dallas, Texas.

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THE COLORADO STATE MEDICAL SOCIETY

OFFICERS, 1930-1931

President: W. A. Kickland, Fort Collins.
President-elect: Edward S. Delehanty, Denver.
Vice Presidents: First, E. D. Downing, Woodmen; Second, George M. Noonan, Walsenburg; Third, I. L. Gotthelf, Saguache; Fourth, Frederick W. Lockwood, Fort Morgan.
Constitutional Secretary: Lorenz W. Frank, Denver.
Executive Secretary: Mr. Harvey T. Sethman, 656-658 Metropolitan Bldg., Denver; Telephone Keystone 0870.
Treasurer: Leo W. Bortree, Colorado Springs.
(The above Officers constitute the Board of Trustees of the Society.)

Delegates to the American Medical Association: Senior, John R. Espey, Trinidad; Alternate, James J. Waring, Denver; Junior, J. W. Amesse, Denver; Alternate William C. Bane, Denver.

Councillors:

		Term expires
District No. 1.	Ella A. Mead, Greeley	1935
District No. 2.	G. P. Lingenfelter, Denver	1934
District No. 3.	George D. Andrews, Walsenburg	1933
District No. 4.	W. W. Crook, Glenwood Springs (Chairman)	1931
District No. 5.	A. J. Nossaman, Pagosa Springs	1932

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Credentials: Lorenz W. Frank, Denver, chairman; F. B. Stephenson, Denver; H. G. Goodson, Colorado Springs.
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Necrology: R. B. Porter, Glenwood Springs, chairman; Lee T. Richie, Trinidad; Charles S. Elder, Denver.

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Medical Extension: Maurice H. Rees, Denver, chairman; Margaret L. Johnson, Boulder; C. E. Harris, Woodmen.
Industrial Commission Fees: William Senger, Pueblo, chairman; Harold T. Low, Pueblo; John R. Espey, Trinidad; H. G. Garwood, Denver; Crum Epler, Pueblo; William H. Halley, Denver.

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Arapahoe County—Last Monday of each month; secretary, V. G. Jeurink, Littleton.

Boulder County—Second Thursday; secretary, Margaret L. Johnson, Boulder.

Chaffee County—First Tuesday of each month; secretary, G. W. Larimer, Salida.

Crowley County—Second Tuesday of each month; secretary, J. A. Hipp, Olney Springs.

Delta County—Last Friday of each month; secretary, A. F. Erich, Delta.

Denver County—First and third Tuesday of each month; secretary, C. H. Darrow.

El Paso County—Second Wednesday of each month; secretary, W. A. Campbell, Jr., Colorado Springs.

Fremont County—Fourth Monday of each month; secretary, Archie Bee, Canon City.

Garfield County—Last Thursday of each month; secretary, R. B. Porter, Glenwood Springs, Colo.

Huerfano County—Third Thursday of each month; secretary, J. M. Lamme, Walsenburg, Colo.

Kit Carson County—Quarterly, first Monday of December, March, June and September; secretary, Wm. L. McBride, Seibert, Colo.

Lake County—First Thursday of each month; secretary, J. C. Strong, Leadville.

Larimer County—First Wednesday of each month; secretary, Lowell Little, Fort Collins.

Las Animas County—First Friday of each month; secretary, M. C. Albi, Trinidad.

Mesa County—First Tuesday of each month; secretary, V. T. De War, Grand Junction.

Montrose County—First Thursday of each month; secretary, F. G. Didrickson, Montrose.

Morgan County—Last Monday of each month; secretary, E. E. Evans, Fort Morgan.

Northeast Colorado—Second Thursday in each month; secretary, E. P. Hummel, Sterling.

Northwestern Colorado—Second Thursday of each month; secretary, Duane Turner, Oak Creek.

Otero County—Second Thursday of each month; secretary, Ward C. Fenton, Rocky Ford.

Prowers County—First Tuesday of each quarter; secretary, Geo. S. Williams, Lamar, Colo.

Pueblo County—First and third Tuesday of each month; secretary, George A. Unfug, Pueblo.

San Juan—Second Saturday, January, April, July and October; secretary, R. L. Downing Durango.

San Luis Valley—Fifteenth of each month; secretary, Sidney Anderson, Alamosa.

Weld County—First Monday of each month; secretary, Florence Fezer, Greeley, Colo.

List of Members of the Colorado State Medical Society

December 1st, 1930

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Baum, Harry L.	Denver	Denver

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Blotz, B. F.	Rocky Ford	Otero
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Carmichael, E. K.	Center	San Luis
Carmichael, Paul W.	Trinidad	Las Animas
Carmody, T. E.	Denver	Denver
Carpenter, F. H.	Denver	Denver
Carpenter, R. Van	Englewood	Arapahoe
Carroll, Frank	Fort Collins	Laramer
Carson, P. C.	Denver	Denver
Cary, G. C.	Grand Junction	Mesa
Casburn, F. E.	Holly	Prowers
Case, A. G.	Denver	Denver
Cassell, O. M.	Alamosa	San Luis Valley
Cassidy Lucius F.	Denver	Denver
Catron, Homer B.	Englewood	Arapahoe
Cattermole, Geo. H.	Boulder	Boulder
Cattermole, Geo. S.	Denver	Denver
Catterson, A. D.	Denver	Denver
Cavanagh, J. L.	Glenwood Springs	Garfield
Cecchini, A. S.	Denver	Denver
Chamberlain, R. S.	Denver	Denver
Chambers, J. C.	La Jara	San Luis
Chambers, Karl	Denver	Denver
Chandler, G. B.	Calhan	El Paso
Chaney, Walter C.	Pueblo	Pueblo
Chapman, E. N.	Colorado Springs	El Paso
Chapman, S. J.	Colorado Springs	El Paso
Chapman, W. S.	Walsenburg	Huerfano
Charles, Robert L.	Denver	Denver
Charney, Herman	Pueblo	Pueblo
Chase, A. M.	Denver	Denver
Chase, John S.	Denver	Denver
Cheley, G. E.	Denver	Denver
Chesmore, H. P.	Delagua	El Paso
Childs, S. B.	Denver	Denver
Chisholm, A. J.	Denver	Denver
Chouke, Dehar Singh	Denver	Denver
Clagett, O. F.	Rifle	Garfield
Clark, I. J.	Fort Morgan	Denver
Cleland, W. S.	Delta	Delta
Clyman, I.	Pueblo	Pueblo
Coakley, Harry Elmer	Denver	Denver
Cobianchi, Philip L.	Denver	Denver
Cochems, F. N.	Salida	Lake
Cochlan, J. T.	Colorado Springs	El Paso
Cohen, H. M.	Denver	Denver
Colby, H. E.	La Junta	Prowers
Coleman, O. E.	Denver	Denver
Collins, E. W.	Denver	Denver
Conant, E. F.	Denver	Denver
Condit, Edwin G.	Crested Butte	San Juan
Condon, C. E.	Leadville	Lake
Connell, J. E. A.	Denver	Denver
Connor, P. J.	Denver	Denver

Name.	Post Office.	Constituent Society.
Conway, L. A.	Colorado Springs	El Paso
Conyers, Chester A.	Denver	Denver
Cook, Robert C.	Ft. Lyons	Denver
Cooke, Myron W.	Erie	Boulder
Cooper, C. E.	Denver	Denver
Cooper, Clyde J.	Denver	Denver
Cooper, Henry Lewis	Denver	Denver
Cooper, Henry S.	Denver	Denver
Cooper, Horace S.	Denver	Denver
Cooper, Thomas S.	Swink	Otero
Corbin, Emmett A.	Eaton	Weld
Corlett, T. G.	Colorado Springs	El Paso
Cornell, H. M.	Dulce, N. M.	San Juan
Corper, H. J.	Denver	Denver
Corry, E. H.	Pueblo	Pueblo
Costigan, Daniel D.	Trinidad	Las Animas
Courtney, Roy F.	Oak Creek	Northwestern
Craig, A. C.	Denver	Denver
Craig, James W.	Loveland	Larimer
Craig, Wm. B.	Denver	Denver
Craighead, J. W.	Pueblo	Pueblo
Cram, V. E.	Fort Collins	Larimer
Craney, J. P.	Denver	Denver
Crannell, Alvin E.	Louisville	Boulder
Crawford, Marvel I.	Denver	Denver
Crisp, Wm. H.	Denver	Denver
Crook, W. W.	Glenwood Springs	Garfield
Crosby, L. G.	Denver	Denver
Crouch, J. B.	Colorado Springs	El Paso
Crysler, W. C.	Littleton	Arapahoe
*Cunningham, A. A.	Denver	Denver
Cunningham, T. D.	Denver	Denver
Curfman, G. H.	Salida	Chaffee
Currigan, Martin D.	Denver	Denver
Curtis, H. B.	Denver	Denver
Daniel, J. H.	Sterling	Northeast
Danielson, Ralph W.	Denver	Denver
Darling, J. C.	Durango	San Juan
Darrow, C. H.	Denver	Denver
Davenport, Robt. G.	Denver	Denver
Davis, A. C.	Lamar	Prowers
Davis, J. B.	Denver	Denver
Davis, Joseph W.	Aguilar	Las Animas
Davis, Jefferson W.	Denver	Denver
Davis, Roy E.	Pueblo	Pueblo
Davis, T. A.	Portland	Fremont
Davlin, C. A.	Alamosa	San Luis Valley
Day, A. L.	Craig	Northwestern
Day, H. S.	Grand Junction	Mesa
Day, R. J.	Alamosa	San Luis
Day, W. A.	Delta	Delta
Dean, E. F.	Denver	Denver
Dean, F. C.	Denver	Denver
Delehanty, Edward	Denver	Denver
Denney, R. H.	Elbert	Denver
Dennis, F. L.	Colorado Springs	El Paso
Dennis, W. S.	Denver	Denver
DeWar, V. T.	Grand Junction	Mesa
Diaz, R.C.	San Luis	San Luis Valley
Dickson, Logan M.	Denver	Denver
Dickson, Robert W.	Denver	Denver
Didrickson, F. G.	Montrose	Montrose
Diemer, F. E.	Denver	Denver
Dietmeier, H. R.	Longmont	Boulder
Dill, Richard D.	Arvada	Denver
Dobos, Emeric Imre	Denver	Denver
Dodge, Horace C.	Oteen, N. C.	Boulder
Dooley, W. P.	Akron	Morgan
Dorset, B. C.	Denver	Denver
Dorsey, Charles W.	Denver	Denver
Dorsey, G. H.	Denver	Denver
Doty, David Albert	Denver	Denver
Douglass, A. L.	Denver	Denver
Downing, E. D.	Woodman	El Paso
Downing, R. L.	Silverton	San Juan
Drea, Wm. Francis	Colorado Springs	El Paso
Dreyer, J. Henry	Denver	Denver
Drinkwater, R. L.	Denver	Denver
Dumm, B. I.	Denver	Denver
Dunham, Jas. I.	Chama, N. M.	San Juan
Dunklee, Geo. K.	Denver	Denver
Dunlap, Florence M.	Denver	Denver
Dunlop, Josephine N.	Pueblo	Pueblo
Durbin, Edgar	Denver	Denver
Dworak, Francis E.	Colorado Springs	El Paso
Dwyer, Paul K.	Alamosa	San Luis
Dyde, C. B.	Greeley	Weld
Dymenberg, N.	Minturn	Denver
Eakins, C. F.	Brush	Morgan
Earley, A. H.	Denver	Denver
Earp, J. Rosslyn	Denver	Denver
Earnest, C. E.	Ft. Collins	Larimer
Eastlake, Chesmore	Denver	Denver
Ebaugh, F. G.	Denver	Denver
*Edson, C. E.	Denver	Denver
Edwards, G. M.	Denver	Denver
Ehrenburg, G. E.	Spivak	Denver
Eikner, William T.	Denver	Denver
Elder, C. S.	Denver	Denver
Elliff, Edgar A.	Sterling	Northeast
Elliot, H. R.	Denver	Denver
Elliott, J. T.	Denver	Denver
Ellis, A. G.	Bangkok, Siam	El Paso
Elrick, Leroy	Denver	Denver
Emery, H. G.	Denver	Denver
Enos, Clinton	Denver	Denver
Epler, Crum	Pueblo	Pueblo
Erich, A. F.	Delta	Delta
Espey, J. G.	Trinidad	Las Animas
Espey, J. R.	Trinidad	Las Animas
Esserman, A. L.	Denver	Denver
Evans, C. H.	Colorado Springs	El Paso
Evans, E. E.	Fort Morgan	Morgan
Evans, F. J.	Denver	Denver
Evans, John R.	Denver	Denver
Evans, T. J.	Colorado Springs	El Paso
Eyerly, T. L.	Denver	Huerfano
Faber, Edwin G.	Denver	Denver
Fantz, T. S.	Denver	Denver
Farnsworth, M. A.	Colorado Springs	El Paso
Farrington, F. H.	Boulder	Boulder
Farrington, Paul R.	Boulder	Boulder
Farthing, C. H.	Meeker	Garfield
Faust, F. A.	Colorado Springs	El Paso
Fenton, W. C.	Rocky Ford	Otero
Fezer, Florence	Greeley	Weld
Filmer, B. A.	Denver	Denver
Finney, H. S.	Denver	Denver
Finney, R. H.	Pueblo	Pueblo
Finnoff, Wm. C.	Denver	Denver
Fischer, V. B.	Boulder	Boulder
Fisher, Carl D.	Denver	Denver
Fitzgerald, D. L.	Hartman	Prowers
Flaten, A. P.	Yuma	Morgan
Fleishman, Max	Spivak	Denver
Fleming, William S.	Phippsburg	Northwestern
Fleming, Victor P.	York, Pa.	Denver
Folsom, C. H.	Julesburg	Northeast
Forbes, R. P.	Denver	Denver
Ford, John E.	Grand Junction	Mesa
Forney, F. A.	Woodman	El Paso
Forster, A. M.	Colorado Springs	El Paso
Foster, J. M.	Denver	Denver
Foster, J. M., Jr.	Denver	Denver
Fowler, Harmon L.	Denver	Denver
Fowler, J. R.	Tioga	Huerfano
Fowler, Ora S.	Denver	Denver
Fox, James Shelton	Denver	Denver
Frank, Lorenz W.	Denver	Denver
Frankle, B. B.	Denver	Denver
Fraser, M. Ethel V.	Denver	Denver

Name.	Post Office.	Constituent Society.
Fraser, R. W.	Denver	Denver
Freeland, H. J.	Denver	Denver
Freeman, Leonard	Denver	Denver
Freshman, A. W.	Denver	Denver
Freudenthal, A.	Trinidad	Las Animas
Friedman, Emanuel	Denver	Denver
Friedman, H. L.	Maywood, Ill.	Denver
Fuller, C. R.	Salida	Chaffee
Fulwider, Robt. M.	Livermore, Calif.	Denver
Fuqua, J. W.	Greeley	Weld
Fuson, Carl C.	Milliken	Weld
Gafford, G. M.	Hugo	Denver
Gaines, J. E.	Las Animas	Otero
Gaines, Joseph R.	Las Animas	Otero
Gale, M. Jean	Denver	Denver
Gallaher, T. J.	Denver	Denver
Gardiner, C. F.	Colorado Springs	El Paso
Gardner, G. C.	La Junta	Otero
Garvin, D. Edson	Golden	Denver
Garwood, H. G.	Denver	Denver
Gasser, W. P.	Fort Collins	Larimer
Gauss, Harry	Denver	Denver
Gellenthien, C. H.	Valmora, N. M.	Denver
Gengenbach, F. P.	Denver	Denver
George, McLeod M.	Denver	Denver
Geissinger, John D.	Pueblo	Pueblo
Giese, C. O.	Colorado Springs	El Paso
Gilbert, G. B.	Colorado Springs	El Paso
Gilbert, O. M.	Boulder	Boulder
Gillaspie, Carbon	Boulder	Boulder
Gillen, G. H.	Denver	Denver
Gillett, O. R.	Colorado Springs	El Paso
Gilmore, G. B.	Colorado Springs	El Paso
Ginsburg, Hyman M	Denver	Denver
Gjellum, A. B.	Del Norte	San Luis
Gleason, R. L.	Fort Collins	Larimer
Glenn, George Alan	Denver	Denver
Goldhammer, Sam'l	Denver	Denver
Good, A. H.	Littleton	Arapahoe
Good, Brooks D.	Colorado Springs	El Paso
Goodson, H. C.	Colorado Springs	El Paso
Gorman, W. Edward	Colorado Springs	El Paso
Gorsuch, John C.	Denver	Denver
Gotthelf, I. L.	Saguache	San Luis Valley
Graf, Carl H.	Boulder	Boulder
Graham, Chas. A.	Denver	Denver
Graham, Donald A.	Denver	Denver
Graham, E. V.	Denver	Denver
Graham, R. F.	Greeley	Weld
Graves, C. H.	Canon City	Fremont
Graves, H. C.	Canon City	Fremont
Green, H. A.	Boulder	Boulder
Greene, Lawrence W.	Denver	Denver
Greenfield, Lewis J.	Manassa	San Luis Valley
Greig, Wm. M.	Denver	Denver
Groshart, O. D.	La Junta	Otero
Grover, B. B.	Colorado Springs	El Paso
Guthrie, Alice B.	Denver	Denver
Guthrie, Ewing C.	Denver	Denver
Gwinn, Lawrence M.	Denver	Denver
Gydesen, C. S.	Colorado Springs	El Paso
Hageman, Geo. R.	Longmont	Boulder
Hageman, S. V.	Las Animas	Otero
Haggart, John	Durango	San Juan
Haggart, W. W.	Denver	Denver
Hall, A. Z.	Eaton	Weld
Hall, Josiah N.	Denver	Denver
Halley, S. C.	Fort Collins	Larimer
Halley, W. H.	Denver	Denver
Halsted, F. S.	Denver	Denver
Hammil, John P.	Denver	Denver
Haney, J. R.	Colorado Springs	El Paso
Hanford, P. O.	Colorado Springs	El Paso
Hanson, K. K.	Grand Junction	Mesa
Hardesty, W. B.	Berthoud	Larimer
Hardy, James O.	Las Animas	Otero
Hargreaves, O. C.	Denver	Denver
Harmer, W. W.	Greeley	Weld
Harris, Allen H.	Denver	Denver
Harris, C. E.	Woodman	El Paso
Hartendorp, P. V. H.	Denver	Denver
Hartley, J. E.	Denver	Denver
Hartshorn, Fred	Fort Collins	Larimer
Hartwell, John B.	Colorado Springs	El Paso
Harvey, Edward Lee	Denver	Denver
Harvey, Horace G.	Denver	Denver
Harvey, H. G., Jr.	Denver	Denver
Harvey, J. L.	Denver	Denver
Haskell, E. E.	Windsor	Weld
Hassenplug, Wm. F.	Cripple Creek	El Paso
Haughey, I. W.	Fort Collins	Larimer
Hawthorne, H. M.	Weldona	Morgan
Hayes, A. I.	Denver	Denver
Hays, W. E.	Sterling	Northeast
Hazlett, H. W.	Paonia	Delta
Hazlett, Joseph D.	Denver	Denver
Hegner, C. F.	Denver	Denver
Helbling, Geo. G.	Chandler	Fremont
Heller, Frederick M.	Pueblo	Pueblo
Henderson, H. B.	Denver	Denver
Hepp, G. Brinton	Denver	Denver
Hereford, J. H.	Colorado Springs	El Paso
Herriman, L. L.	Alamosa	San Luis Valley
Heusinkveld, Gerrit	Denver	Denver
Heuston, H. H.	Boulder	Boulder
Hick, L. A.	Delta	Delta
Hick, Lawrence L.	Delta	Delta
Hickey, Clinton G.	Denver	Denver
Hickey, H. L.	Denver	Denver
Hickman, W. E.	Wiley	Prowers
Higbee, O. F.	Fowler	Otero
Higbee, Daniel R.	Denver	Denver
Hill, E. C.	Denver	Denver
Hill, Kenneth A.	Denver	Denver
Hill, Lawrence H.	Colorado Springs	El Paso
Hillkowitz, Philip	Denver	Denver
Hills, W. K.	Colorado Springs	El Paso
Hills, W. W.	Colorado Springs	El Paso
Hilton, J. P.	Glenwood Springs	Garfield
Hinshaw, J. D.	Canon City	Fremont
Hipp, J. A.	Little Rock, Ark.	Crowley
Hix, I. E.	Denver	Denver
Holden, Eugene	Eaton	Weld
Holden, G. Walter	Denver	Denver
Holland, A. C.	Colorado Springs	El Paso
Holmes, R. E.	Canon City	Fremont
Honstein, C. E.	Fort Collins	Larimer
Hook, Merrit B.	Denver	Denver
Hopkins, G. A.	Glenwood Springs	Garfield
Hopkins, Guy H.	Pueblo	Pueblo
Hopkins, Hugh John	Denver	Denver
Hopkins, John R.	Denver	Denver
Hopkins, T. M.	Denver	Denver
Hotchkiss, Walter K.	Brighton	Denver
Hotopp, T. M. H.	Kirk	Morgan
Houf, W. H.	Iliff	Northeast
Howard, C. J.	Rutland, Mass.	Denver
Howard, J. F.	Denver	Denver
Howard, T. Leon	Denver	Denver
Howell, J. D.	Berthoud	Larimer
Howell, T. F.	Alamosa	San Luis
Howell, W. C.	Colorado Springs	El Paso
Hoyt, Ralph W.	Denver	Denver
Hudston, R.	Denver	Denver
Huelsmann, L. C.	Colorado Springs	El Paso
Hummel, E. P.	Sterling	Northeast
Humphrey, Fred A.	Fort Collins	Larimer
Hurley, J. R.	Antonito	San Luis
Hutchinson, Wm.	Pueblo	Pueblo
Hutchison, Jas. E.	Denver	Denver

Name.	Post Office.	Constituent Society.
Hutton, Jack G.	Denver	Denver
Hutton, V. A.	Florence	Fremont
Inglis, John	Denver	Denver
Ingraham, C. B.	Denver	Denver
Irwin, Robert S.	Denver	Denver
Jackson, B. F.	Pagosa Springs	San Juan
Jackson, Edward	Denver	Denver
Jackson, F. A.	Salida	Chaffee
Jaeger, Chas.	Denver	Denver
Jaeger, J. R.	Denver	Denver
Jaffa, B. B.	Denver	Denver
Jeffery, J. E.	Ordway	Crowley
Jelstrup, Gunnar	Denver	Denver
Jernigan, V. J.	Longmont	Boulder
Jeurink, V. J.	Littleton	Arapahoe
Jobe, Merriil Collins	Denver	Denver
John, Grant H.	Englewood	Denver
Johns, E. W.	Fort Collins	Larimer
Johnson, E. E.	Cortez	San Juan
Johnson, E. R.	Fort Morgan	Morgan
Johnson, Geo. S.	Denver	Denver
Johnson, Harry A.	Fort Morgan	Morgan
Johnson, Margaret	Boulder	Boulder
Johnson, Ross W.	Denver	Denver
Johnston, R. S.	La Junta	Otero
Johnston, W. S	Pueblo	Pueblo
Jones, L. L.	Boulder	Boulder
Jones, S. Fosdick	Denver	Denver
Jones, Vera H.	Denver	Denver
Jones, Wm. W.	Denver	Denver
Joslyn, S. A.	Loveland	Larimer
Joy, Homer T.	Colorado Springs	El Paso
Kampmeier, R. H.	Pueblo	Pueblo
Katzman, Maurice	Denver	Denver
Keller, C. J.	Arriba	Kit Carson
Keller, W. C.	Genoa	Kit Carson
Kelsey, Otis H.	Denver	Denver
Kemper, C. F.	Denver	Denver
Kennedy, Arthur L.	Denver	Denver
Kennedy, Geo. A.	Limon	Denver
Kenney, F. W.	Denver	Denver
Kent, Geo. B.	Denver	Denver
Kent, Wallace C.	Denver	Denver
Kern, B. F.	Platteville	Weld
Kettlekamp, Fred O.	Colorado Springs	El Paso
Kickland, W. A.	Fort Collins	Larimer
Killough, H. B.	Pueblo	Pueblo
King, W. W.	Denver	Denver
Kinney, J. E.	Denver	Denver
Kinzie, J. W.	Haxtum	Northeast
Kleiner, Moses	Denver	Denver
Klopfenstein, F. C.	Boulder	Boulder
Knoch, N. H.	Denver	Denver
Knott, Isaiah	Montrose	Montrose
Knowles, E. W.	Greeley	Weld
Knowles, T. R.	Colorado Springs	El Paso
Knuckey, C. T.	Lamar	Prowers
Koplowitz, J. E.	Rico	Garfield
Kracaw, A. R.	Denver	Denver
Kretschmer, Otto S.	Denver	Denver
Krohn, M. J.	Denver	Denver
Krueger, E. H.	Denver	Denver
Kruse, May B.	Denver	Denver
Kunitomo, N.	Denver	Denver
Laff, Herman	Denver	Denver
Lamberton, Robt. F.	Denver	Denver
Lamme, J. M.	Walsenburg	Huerfano
Lamme, S. J.	Walsenburg	Huerfano
LaMoure, H. A.	Pueblo	Pueblo
*Lane, Harold C.	Denver	Denver
Lang, Ray	Denver	Denver
Langdon, E. E.	Santa Monica, Calif.	Denver
Lannon, A. R.	Denver	Denver
Larimer, G. W.	Salida	Chaffee
Larson, J. H.	Wray	Mesa
Lassen, Fritz	Pueblo	Pueblo
Latta, C. J.	Sterling	Northeast
Laverty, Lucius F.	Bay City, Mich.	Denver
Lawson, J. A.	Rocky Ford	Otero
Leavitt, Byron C.	Millbrook, Mass.	Denver
Lee, George F.	Denver	Denver
Lee, G. H.	Denver	Denver
Lee, L. W.	Denver	Huerfano
Lee, Paul A.	La Veta	Huerfano
Leeper, D. D.	Ault	Weld
LeFevre, H. W., Jr.	Denver	Denver
Lefurgey, H. C.	Dolores	San Juan
Lehan, J. W.	Greeley	Weld
Lennox, Paul M.	Colorado Springs	El Paso
LeRossignol, W. J.	Denver	Denver
Levine, S. J.	Grover	Weld
Levy, Maurice	Denver	Denver
Levy, Robt.	Denver	Denver
Lewark, Sarah D. H.	Strasburg	Arapahoe
Lewis, G. B.	Denver	Denver
Lewis, Robert	Denver	Denver
Lewis, W. B.	Denver	Denver
Lewis, Walter H.	Hotchkiss	Delta
Leyda, James H.	Denver	Denver
Leyda, Paul L.	Denver	Denver
Libby, Geo. F.	Victoria, B. C.	Denver
Liddle, E. B.	Colorado Springs	El Paso
Likes, L. E.	Lamar	Prowers
Lilienthal, Samuel	Denver	Denver
Lincoln, C. L., Jr.	Denver	Denver
Lingenfelter, G. P.	Denver	Denver
Lingenfelter, H. A.	Durango	San Juan
Lipscomb, J. M.	Denver	Denver
Little, Lowell	Ft. Collins	Larimer
Lockard, Lorenzo B.	Denver	Denver
Lockwood, C. E.	Montrose	Montrose
Lockwood, F. W.	Fort Morgan	Morgan
Löf, A. J. O.	Denver	Denver
Long, Margaret	Denver	Denver
Loomis, P. A.	Colorado Springs	El Paso
Lorber, M. B.	Denver	Denver
Lorimer, Hugh	Bennett	Denver
Love, Tracy R.	Denver	Denver
Low, H. T.	Pueblo	Pueblo
Lowe, Wilbur	Rockvale	Fremont
Lowen, Chas. J.	Denver	Denver
Lowther, R. R.	Denver	Denver
Luqueer, F. A.	Pueblo	Pueblo
Lusby, A. C.	Brush	Morgan
Lux, L. L.	Greeley	Weld
Lynch, E. B.	Canon City	Fremont
Macomber, D. W.	Denver	Denver
Macomber, Geo. N.	Denver	Denver
Macomber, H. G.	Denver	Denver
Madden, J. H.	Colorado Springs	El Paso
Madler, N. A.	Greeley	Weld
Mahoney, J. J.	Colorado Springs	El Paso
Maier, Frank J.	Denver	Denver
Main, George C.	Denver	Denver
Male, J. T.	Yampa	Northwestern
Manns, Rudolph	Denver	Denver
Marbourg, E. M.	Colorado Springs	El Paso
Marcove, M. E.	Denver	Denver
Markel, Casper	Denver	Denver
Markley, Arthur J.	Denver	Denver
Marmaduke, C. V.	Pueblo	Pueblo
Mason, Lyman W.	Denver	Denver
Masten, A. R.	Wheatridge	Denver
Mathews, P. G.	Walsenburg	Huerfano
Matlack, J. A.	Longmont	Boulder
Matson, Wm. F.	Denver	Denver
Maul, H. G.	Denver	Denver
Maul, R. F.	Denver	Denver
Maynard, C. W.	Pueblo	Pueblo
Maynard, Donald E.	Durango	San Juan
McArthur, A. W.	Delta	Delta

Name.	Post Office.	Constituent Society.
McBride, W. L.	Seibert	Kit Carson
McCabe, F. H.	Lamar	Boulder
McCain, A. C.	Ault	Weld
McCarty, D. W.	Berthoud	Larimer
McCaw, J. A.	Denver	Denver
McClanahan, A. C.	Delta	Delta
McClanahan, Z. H.	Colorado Springs	El Paso
McCleary, E. O.	Ordway	Crowley
McClelland, M. A.	Aguilar	Las Animas
McClure, C. O.	Trinidad	Las Animas
McConnell, J. C.	Somerset	Delta
McConnell, J. F.	Colorado Springs	El Paso
McCorkle, H. B.	Colorado Springs	El Paso
McCrossin, W. P., Jr.	Colorado Springs	El Paso
McDonald, F. J.	Leadville	Lake
McDonald, R. J., Jr.	Denver	Denver
McDonnell, J. J.	Pueblo	Pueblo
McDonough, J. P.	Gunnison	Chaffee
McFadden, J. G.	Loveland	Larimer
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McLauthlin, C. A.	Denver	Denver
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Mead, Ella A.	Greeley	Weld
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Meader, Chas. N.	Denver	Denver
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Menkel, H. C.	Simla, India	Denver
Menser, Bert	Denver	Denver
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Steinberg, C. L.	Denver	Denver
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Stevens, John L.	New Castle	Garfield
Stewart, M. J.	Denver	Larimer
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Struthers, J. E.	Denver	Denver
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Sunderland, O. R.	Edgewater	Denver
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Thompson, J. W.	Pueblo	Pueblo
Thompson, Lester E.	Pueblo	Pueblo
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VanMeter, Virginia C.	Denver	Denver
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EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT

HEALTH INSURANCE WITHOUT ANY MEDICAL EXAMINATION

Tonight there rest on our office desk as we write this editorial three so-called health insurance policies. None of these were ordered or solicited.

They represent a recent development in Life, Accident and Health Insurance that is a disgrace to the insurance business. The lax enforcement of the laws by the State Insurance Commissions is to be condemned.

These policies are filled out and sent to people all over the United States and many of those who accept and pay their monthly or quarterly payments will awake too late to learn that the whole plan is a fraud.

Think of writing a life or health insurance policy and yet requiring no medical examination. For all the Insurance Company knows the person to whom this policy was sent may be in the last stages of tuberculosis, almost ready to die of Bright's disease or slowly dying with a carcinoma of the stomach. Yet by the payment of four dollars the Health Insurance would be in force.

Health, life and accident insurance companies are bothering the medical profession constantly by asking for information about cases connected with this undesirable form of life and health insurance and expecting the doctor to give privileged communications to the insurance companies and often not even offering any pay for the doctor's time and knowledge. It is high time for the medical profession of Wyoming and the Rocky Mountain states to put their feet down firmly and refuse all such information. There is no excuse for this type of insurance and we ought to deny all assistance to these quack concerns. They lick the platter clean and ask the medical profession to be their flunkies; and assist them in defeating claims when the whole "insurance without medical examination" outfit is a graft.

A medical opinion is all important and a fair fee should be paid by the insurance companies for the facts on which they should base their judgment as to the desirability of the risk.

Stand by your guns and turn down all requests for free information to insurance companies and warn your patients against all insurance companies who write life and health insurance without proper scientific medical examinations. E. W.

WYOMING NEWS NOTES

BASIN—Dr. R. H. Kanable who is the new superintendent at the Wyoming Tuberculosis Sanitarium received his preliminary education at Kokomo, Ind., and Bear Lake, Mich. He graduated in 1922 from Hahneman College, Chicago, Ill., and has held the following appointments: Assistant Superintendent, Edwards Sanitarium, Naperville, Ill., 1924-25; Assistant Physician, State Sanitarium, Oakdale, Ia., 1925-27; Assistant Superintendent, Broadlawn Public Hospital, Des Moines, Ia., 1927-29. The doctor has recently joined the Northwestern Wyoming Medical Society and the Wyoming State Medical Society and we are glad to welcome him in our midst and assure him of the co-operation of the doctors throughout Wyoming. We should be delighted to have him make a report at the Rawlins meeting of the State Society covering the work done at Basin, together with any suggestions that he may have to offer to the doctors of Wyoming.

SHERIDAN—Dr. L. C. Meredith recently made a trip to Denver.

SPINAL ANESTHESIA

W. W. HORSLEY, M.D.
LOVELL, WYOMING

During the past half year, Dr. Croft and I have employed spinal anesthesia almost exclusively for surgical operations below the diaphragm. Our number of cases is rather small but each administration has been so encouraging that we are now more than ever enthusiastic about this type of anesthesia and declare it to be the ideal surgical anesthetic.

One must be able to apply the ideal surgical anesthetic universally and with ease. It should permit surgery without shock to the central nervous system and at the same time give complete muscular relaxation. But most important of all, it must be applicable with safety. I believe spinal anesthesia meets all five of these requirements. It can be used for surgery of the head, neck and chest almost as easily as for the lower extremities. Anyone who can do a spinal puncture properly can administer it readily, although extreme care must be exercised in reinjecting the solution so that it actually enters the subarachnoid space. Failures are due solely to faulty injection. Inasmuch as this is essentially a block anesthesia, traumatic impulses from the operative field do not reach the brain and shock is therefore minimized according to the anoci-association principle of Crile. Spinal anesthesia is safe. We have not had a bad result from using it and prefer it to ether. Koster[1] of Brooklyn has now done about five thousand operations of various types without serious result directly attributable to the spinal anesthetic. Bastron[2] says: "It is not stretching the truth when I say that with faultless technique—fatalities and bad effects should be fewer than with ether anesthesia."

There are certain types of cases in which spinal anesthesia is especially indicated. One appreciates it in those emergency cases which cannot be properly prepared for a general anesthetic and in cases that are complicated by acute respiratory infections wherein one hesitates to give inhalation anesthetics. It appears to be the anesthetic of choice when multiple operations are to be done and a rather long period of time is anticipated. If the spinal block should not last long enough, then gas or ether may be given with safety, if not without embarrassment.

During operations with spinal anesthesia, the burden on the heart is lightened by the fall in blood pressure due to dilatation of the abdominal veins from blocking constrictor fibers of the splanchnic nerves. For this reason it is advantageous to advise operative patients with hypertension to submit to this method. Even in hypotension, there is no contraindication for with the patient in Trendelenburg position, gravity supplies the heart with sufficient blood and we no longer need worry about the blood pressure no matter how low it may go.

In renal disease it is very important to guard against irritation of the kidneys by anesthetics. Such small doses of novocain as are used for spinal block, will not add injury to these organs for it is rather nontoxic.

Perhaps the most striking case in which we used spinal anesthesia, was one of intestinal obstruction. Even before the incision was made, we noted a diminution of abdominal distention. Everything was relaxed; the bowels were not forced out of the incision; gauze packs were not required and recovery was very rapid. Probably a favorable factor was the increased effect of the vagus while the splanchnic inhibitory impulses were blocked.

In a case of osteomyelitis of a lower extremity, we were impressed with the absence of profuse hemorrhage which usually is present in these cases when other anesthetics are used. The anemia is the result of dilatation of the abdominal veins.

Practically no complications have followed the use of spinal anesthesia in our hospital. One case complained of headache for two days but this yielded quickly to repeated magnesium sulphate enemas. As yet we have not had to withdraw spinal fluid because of intractable headache due to in-

creased pressure in the spinal canal following block with novocain. Postoperative retention of urine frequently occurs, most often following herniotomy, but this is seen with about the same frequency when other anesthetics are used. Hematomas may also occur unless rigid hemostasis is maintained.

Our technique has been simplified as much as possible. We use no preoperative sedative as a routine. Both morphine and codeine have been used one-half hour before operation. Sodium Amytal by mouth has been used in 6 grain doses the night before operation and again the next morning. The majority of our cases do not receive any sedative drug until the operation is completed. Each case, however, is now given an ampule containing ¾ grain of ephedrine sulphate about ten minutes before the novocain is injected. This is employed to help maintain the blood pressure for a few minutes in hope of preventing nausea and vomiting which so often occur simultaneously with dilatation of the abdominal vessels.

The position of the patient during spinal puncture is not important. The prone position is usually chosen. Injection is made in the space between the second and third lumbar vertebrae which is just beyond the termination of the cord. I think it is very important to infiltrate the skin and subcutaneous tissues with novocain solution before a spinal puncture is made. One may do a puncture without infiltrating with novocain, but it should always elicit a vigorous complaint from the patient.

Dosage is governed according to the age and size of the patient, the length of the operation anticipated, and the height of the anesthesia desired. Children receive from 50 to 100 milligrams of novocain, while adults will require 100 to 300 milligrams. Usually 100 milligrams will be sufficient dosage for the ordinary thirty minute laparotomy in the average adult.

Two methods are practiced at present to produce spinal block; in one, a solution whose specific gravity is less than that of spinal fluid is injected; in the other method, novocain crystals are dissolved in spinal fluid which is reinjected. As a rule 4 cubic centimeters of spinal fluid are withdrawn, but in long operations or in operations upon the upper extremities a double amount is necessary.

The patient must be placed in a partial Trendelenburg position to prevent cerebral anemia. If the patient complain of air hunger, lower the head still more. We no longer need worry about diffusion of the novocain to the medulla, for Koster and Kasman[3, 4] have shown experimentally that this drug has special affinity for sensory nerve fibers and that a primary paralysis of the respiratory center is not produced by a weak novocain solution and that irritability persists quite some time after conductivity is destroyed. However, the concentrated drug injected into the lumbar region will block motor impulses to the lower extremities and the patient is not able to move his legs.

The drug is fixed in the lipoid substance of nerve tissue in about twenty minutes and it is not necessary to keep the patient's head lowered after he is taken to his room provided that skin sensation is returning and the heart is adequately supplied with blood

In conclusion, I wish to repeat that spinal anesthesia is safe; that it has a wide application; that it minimizes shock; that it gives perfect muscular relaxation and that it is easy to administer properly. Furthermore, there is no more worry about anesthetists. You may give it yourself. True, spinal anesthesia is fascinating, but it can no longer be called a fad. In my opinion it is a convenient surgical anesthetic for the Wyoming physician who really prefers to practice medicine in these wide open spaces.

REFERENCES

[1]Koster, H.: Spinal anesthesia with special reference to its use in surgery of the head, neck and thorax. Am. J. Surg. 5:59 (Dec.) 1928.

[2]Bastron, C. H.: Spinal anesthesia in abdominal surgery, Northwest Med. 25:240 (May) 1926.

[3]Koster, H. and Kasman, L. P.: Spinal anesthesia for head, neck and thorax; its relation to respiratory paralysis. Surg. Gyn. Obst. 49:617 (Nov.) 1929.

[4]Koster, H. and Wemtrob, M.: Complications of spinal anesthesia. Am. J. Surg. 8:1165 (June) 1930.

TWENTY-EIGHTH ANNUAL SESSION WYOMING STATE MEDICAL SOCIETY

The twenty-eighth annual meeting of the Wyoming State Medical Society was held in Sheridan, Wyoming, on July 14 and 15, 1930.

At 11:30 a. m. Dr. C. W. Jeffrey, president, called the House of Delegates to order.

The following members were present with proper credentials:

Fremont County—Dr. E. L. Jewell
Laramie County—Drs. George P. Johnston, N. C. Nelson
Natrona County—Drs. H. L. Harvey, W. W. Yates
Northwestern County—Drs. F. A. Mills, W. W. Horsley
Sheridan County—Drs. S. W. Johnson, J. E. Carr, Earl Whedon
Sweetwater County—Drs. R. H. Sanders, J. F. Whalen
Carbon County—Drs. W. L. Crandall, C. W. Jeffrey

Upon motion duly made, seconded and carried, the minutes of the Casper meeting (1929) were approved as printed in the December number of Colorado Medicine.

The Treasurer, Dr. Evald Olson, submitted the following report which was referred to the councilors as an auditing committee:

"To the officers and members of the Wyoming State Medical Society in convention assembled at Sheridan, your Treasurer begs to submit the following reports for the year ending July 8, 1930:

GENERAL FUND

Debit

1929		
June 20, to balance	$ 315.45	
1930		
June 14, to cash received from Secretary Whedon from Oct. 9, 1929, to date	730.00	
Credit		
July 8, by vouchers, number 123 to 138, inclusive		$ 762.16
July 8, by balance		283.29
	$1,045.45	$1,045.45

DEFENSE FUND

Debit

1929		
June 20, to balance	$ 392.59	
1930		
June 14, to cash received from Secretary Whedon	730.00	
June 14, to coupons on $6,000	213.72	
Credit		
June 26, bought one $1,000 U. S. Treasury bond		$1,020.44
July 8, by balance		315.87
	$1,336.31	$1,336.31
1929		
June 20, to balance U. S. Treasury bond account	$5,985.96	
1930		
June 26, bought one $1,000 U. S. Treasury bond	1,020.44	
July 8, by balance		$7,006.40
		$7,006.40

INTEREST ACCOUNT

1929		
June 20, by balance		$ 188.47
1930		
June 15, U. S. Treasury coupons		213.72
July 8, to balance	$ 402.19	
	$ 402.19	$ 402.19

TOTAL RESOURCES OF THE SOCIETY

U. S. Treasury Bonds, par value	$7,000.00
Balance in First National Bank of Meeteetse	530.91
Cash on hand	68.25
	$7,599.16

Respectfully submitted,
EVALD OLSON,
Treasurer."

The Committee on Deaths submitted the following resolutions which were adopted and the Secretary was instructed to transmit a copy to Mrs. Marshall and son and spread the same upon the records.

"Sheridan, Wyo., July 14, 1930.

"Whereas, Since our last Session there has been called from our Councils, Dr. T. E. Marshall. He was a member of our profession, earnest in his efforts, conscientious in his consultations, ambitious in the advance of his profession, wise and balanced in his judgment, man of worth, student of his chosen work, and friend to all. Loyal in citizenship, admirer of honest accomplishments and a practical example of what a character should be; now therefore be it

Resolved, That we at this time express our sorrow and endeavor to measure our loss. The public has suffered in his passing, the profession has suffered great loss, acquaintances have experienced the loss of a warm and true friend; his immediate relatives have sustained a break in the family circle. To all these we therefore extend our sincere and most affectionate sympathy; be it further

Resolved, That a copy of this resolution be spread upon the minutes of the Wyoming State Medical Society and that a copy be mailed to his family.

DR. S. W. JOHNSON,
DR. W. W. YATES,
Committee."

The Medical Defense Committee reported as follows, which report was received and ordered filed.

"We, your Committee on Medical Defense, beg leave to submit the following report:

"At present your committee is interested in four cases of malpractice. For reasons which we can all understand we do not think it best to go into these cases in detail. It has been most gratifying to see the ready response on the part of the membership of the State Society to our call for help on the part of the Wyoming doctors. The underlying fact that we come to the aid of our fellow practitioners in times of trouble urges us to continue to fight for justice in our cases.

"It has taken a great deal of time and work and your committee wishes to express its appreciation to the doctors who have helped in these cases. These trials will be followed up and every assistance that can be given by the profession

will be appreciated by the doctors involved, by your committee.

Respectfully submitted,

DR. EARL WHEDON,
DR. C. E. HARRIS,
DR. F. A. MILLS."

The Secretary, Dr. Earl Whedon, submitted the following report, which was ordered printed:

"Again it is my duty and pleasure to make this, my eleventh annual report, as your Secretary.

"Following the Casper meeting all officers and committees elected and appointed were notified, the minutes written and published together with the reports of officers in the December issue of Colorado Medicine.

"A complete roster of the membership was also printed with the reports.

"One of the outstanding accomplishments of the past year has been the organization of County Medical Societies in Carbon and Sweetwater counties.

"The Carbon County Society was formed and a charter issued March 31, 1930, for this Society.

"The Sweetwater County Society has just been organized and will apply for a charter which no doubt will be granted at the next meeting of the Council. On October 2, 1927, President Kimball of Casper and your Secretary made a trip to Rock Springs and tried to get the physicians of Sweetwater County to form a society as the old organization had held no meetings for several years.

Councilors Drs. J. H. Goodnough of Rock Springs and H. L. Harvey of Casper made a trip to Rawlins and thus the Carbon County Medical Society was in a large measure the result of their efforts, and now the Sweetwater Society is about to take its place among the County Societies of the State Society.

Credit is due to Councilors Goodnough and Harvey for their efforts during the past year.

My collection of dues since the last report at the Casper meeting have been as follows:

2 members paid their 1928 dues	$ 20.00
9 members paid their 1929 dues	90.00
136 members paid their 1930 dues	1,360.00
Total collected	$1,470.00

This is $70.00 more than was collected the year before; and, whereas, we reported 134 paid for 1929, we have this year 136 paid for 1930. These six men in our State Society who have failed to pay their 1930 dues will be dropped from membership in our Society and also in the American Medical Association by reason of their failure. One has written that he would send his check in a few days as he was at that time in a hospital in Colorado.

"On the other hand, we added a few names.

"The expenses for the year have been as follows:

Printing	$ 31.25
Stationery	39.00
Colorado Medicine	353.75
A. M. A. Directory	12.00
Safety deposit boxes, Treasurer	6.90
Councilor Harvey	8.16
Councilor Goodnough	14.10
Stenographer's salary	200.00
Bond for Secretary	2.50
Badges	28.00
Golf cup	25.00
Treasurer's expenses	2.74
Stamps	18.50
Phones and wires	19.54
Express	.72
	$762.16

"From the above it will be seen that the expenses over ran the receipts in the General Fund $27.16, but the interest on deposits more than made this up.

"The balance in the General Fund after all expenses have been paid is $260.04, and in the Medical Defense Fund there is $7,315.87."

At the Casper meeting in June, 1929, a contract was made between the Wyoming State Medical Society and the United States Fidelity & Guaranty Company for a master policy made out to your Secretary as trustee for such members as wished to join in a group form of insurance up to July 1, 1930.

This policy covered a total of $3,320,000.00, and so far since July 1, 1930, $29,850.00 has been written in protection for the Wyoming doctors.

The average saving to each member of this Society is equal to our state dues. In other words, belonging to the State Society allows you to buy your liability insurance at such a low price in a group contract that you save the amount of your state dues in this arrangement.

Quite a little talk has come from one Society advocating the discontinuing of the medical defense feature, but from the report of the Medical Defense Committee it is self-evident that we should continue and build up a fund of at least $10,000.00. So far we have been most fortunate in that all cases the men sued have also had liability insurance and then our Society has not been called upon to defend and pay out our funds, but we have assisted in the defense in other ways.

In view of the saving we now enjoy by our group plan we should continue this one of the most helpful features of our Constitution and By-Laws.

We should all keep in mind the 1933 meeting.

The State Society of Utah has asked permission to join with Montana, Idaho and Wyoming in this next Yellowstone meeting, and we feel that the members of our Society will extend a welcome to Utah to join with us in our 1933 meeting.

In selecting the places to hold our 1931 and 1932 meetings we should keep this Yellowstone meeting in mind and so arrange the next two years' meetings to give the members in the south and central parts of Wyoming meetings nearer their homes.

Your Secretary attended the annual meeting of the State Secretaries at Chicago in November of last year and greatly enjoyed that meeting.

A report having been made in the Journal, the actions taken will not again be called to your attention.

Dr. Thomas Elden Marshall, an honored member of the Sheridan County Medical Society, died on March 3 of this year. Dr. Marshall had practiced in Sheridan for the past twenty-five years and was an honored member of our State Society. May we stand and bow our heads as we think of his many sterling qualities and reverence his memory.

That all ethical members of the medical profession should be members of our State Society is self-evident. They owe it to themselves and to us to join organized medicine and we feel that the northeastern counties of Campbell, Weston and Crook should organize into a society on the plan of the Northwestern Wyoming Medical So-

ciety. This should be the work of the physicians in those counties, the officers of the State Society and the councilors.

Every ethical member of our profession should belong to a county society and to the State Society.

We face peculiar problems in some of the unfair competition in our hospitals by reason of unethical practice of fee splitting and it is up to our Society to take a decided stand and expose this unfair treatment which the Wyoming hospitals and doctors have to meet.

Any man who for the consideration of a fifty fifty split he may receive by sending his patient to those unfair institutions should be exposed and shunned by members of this Society. It is not fair to him, to his patients or to our hospitals.

The question of the dog tax on the medical profession calls for action on the part of our House of Delegates and from the many protests which have come to the Secretary's office we feel the profession of Wyoming desires the repeal of this useless piece of taxation which is unfair and unAmerican. We wish to extend to the President, Dr. Jeffrey, our sincere thanks for the cooperation given during the year and to our efficient Treasurer, Dr. Evald Olson, for his very helpful acts during the year.

Respectfully submitted,
DR. EARL WHEDON,
Secretary."

The Committee on Resolutions reported as follows, which report was ordered printed:

"The Committee of Resolutions for the Twenty-eighth Annual Meeting of the Wyoming State Medical Society respectfully submit the following resolutions:

Whereas, The honorable mayor of the city of Sheridan, who had no 'key' to the city, extended to our organization a hearty welcome, offering to extend to us anything within the city; be it

Resolved, That we express our appreciation to the honorable mayor, and through him to the citizens of Sheridan for the welcome we have received and the pleasant time enjoyed during our visit in Sheridan; be it

Resolved, That we, the Wyoming State Medical Society, hereby extend our thanks and record our appreciation for this most excellent reception and entertainment by representatives of his city of Sheridan. That we express our most hearty thanks to Dr. Carson, Medical Officer in Charge of U. S. Veterans' Hospital No. 86, and his staff of medical officers for their most hearty entertainment, lunch, clinics and their efforts to make our meeting in Sheridan a success as well as instructive.

That we express our appreciation to the Elks' Club of Sheridan for the use of their Home during this convention, and extend our heartfelt thanks to the Sheridan Country Club for their royal entertainment to ourselves and the Ladies' Auxiliary of this Society; be it further

Resolved, That we express our gratitude to the Sheridan County Medical Society for their untiring efforts to make the 28th annual meeting of the Wyoming State Medical Society a success, for their wonderful entertainment of the members of the Society, their wives and guests. And that we extend our thanks to the Sheridan County Memorial Hospital, its staff and nurses for its entertainment, luncheon, clinics and the use of its buildings; be it further

Resolved, That we extend our thanks to the visiting doctors for their splendid papers presented at this meeting and their discussion of the matters of interest to the Society; be it further

Resolved, That we extend to the Sheridan Post-Enterprise and to the Sheridan Journal our thanks and appreciation for the publicity given this meeting and for the very fair report of our proceedings. We realize the great value the press has in the proper education of people in health matters and commend them for the faithfulness along these lines.; be it further

Resolved, That we extend to the officers of the Society our most sincere appreciation for their interesting efforts in behalf of this Society for the past year.

Respectfully submitted,
DR. W. W. HORSLEY,
DR. ROBERT H. SANDERS,
DR. HERBERT L. HARVEY."

The Council submitted the report of the editor of the Wyoming part of Colorado Medicine as follows:

"To the Council:

Gentlemen: I have the honor to report that since our last meeting at Casper our Society has conducted part of Colorado Medicine and the following is a list of the articles appearing in that Journal:

Editorials	29
Scientific papers	9
Presidential addresses and articles	3
Other articles contributed	5
News items	90
Minutes of the annual meeting	1
Complete list of members	1
	138

The June number of each year is known as University issue and is edited by the faculty and alumni of the Colorado University and only editorials and news items are used in that month.

The proceedings of the House of Delegates, together with the reports of the officers, were published.

This is one of the important advantages we have in our Journal in as much as all members who were not at the meeting of the House of Delegates are able to read just what was done by the governing body and just how the Society is run in a financial way.

Again the editor urges the necessity of a closer co-operation on the part of the members and the editor in order to make the news items more interesting. This is one feature where great improvement is necessary.

The editor especially wishes to acknowledge the help of Dr. F. A. Mills, from the Northwestern Wyoming Society and to Dr. H. L. Harvey from the Natrona Society, who were very kind in sending in news items. Others also helped, but not as much as these two men.

The unfortunate experience in the Dr. E. S. Lauzer case caused the editor no little worry and we have no apology to make for our editorial on the matter. It was certainly a terrible mistake on the part of Dr. Lauzer to have given the Associated Press the stories he did.

The question of the value of his reported discovery does not even enter into the question so far as the policy of the editor is concerned. But we do believe in and have to the best of our ability uphold the true standard of medical ethics.

How far we have come from the mark you all can judge.

Quite a few letters have been received in the past year from members of this and other societies commending our efforts and editorials.

These letters have encouraged the editor and we feel that at least some members approve our policies.

The total cost to the Society for the year amounts to $2.50 per member and this year we had and have paid to Colorado Medicine on 137 members $337.50, for which every member has received a copy of Colorado Medicine which not only published our material but supplied many times the amount and of a higher quality than that of your editor.

We firmly believe in the continuance of our pleasant relationship as co-publishers with Colorado of a joint Journal.

Respectfully submitted,
DR. EARL WHEDON,
Editor."

Election of the officers resulted in the following:

President-elect ... Dr. R. H. Sanders, Rock Springs
Vice President ... Dr. W. W. Yates, Casper
Treasurer ... Dr. Evald Olson, Meeteetse
Secretary ... Dr. Earl Whedon, Sheridan
Councilor, 3-year term ... Dr. J. H. Goodnough, Rock Springs
Delegate to A. M. A., 2-year term ... Dr. Geo. P. Johnston, Cheyenne
Alternate to A. M. A., 2-year term ... Dr. Earl Whedon, Sheridan
Second Alternate to A. M. A., 2-year term ... Dr. C. W. Jeffrey, Rawlins
Medical Defense Committee—Dr. Earl Whedon, Secretary, Sheridan; Dr. F. A. Mills, Powell; Dr. Chester E. Harris, Basin.

Whereupon the House adjourned until 1 p. m.

"Sheridan, Wyo., July 15, 1930.

Adjourned meeting of the House of Delegates called to order by President Dr. C. W. Jeffrey.

Roll call showed all members present.

Upon motion duly made, seconded and carried, the incoming President, Dr. E. L. Jewell, was empowered to appoint a Public Policy and Legislation Committee to serve for one year.

Dr. F. A. Mills of Powell related to the House of Delegates the condition of affairs in the Big Horn Basin, calling particular attention to the fact that several unlicensed practitioners were located in that part of the state. He called attention to the fact that the State Board of Medical Examiners through the Secretary of the Board, Dr. W. H. Hassed and Dr. Chester Harris, member of the Board, had interviewed and warned these irregulars of their unlawful practice, but they still continued as before.

A general discussion followed the remarks of Dr. Mills and it was voted by the House of Delegates that the Medical Defense Committee investigate this matter and take such action as they deemed best.

The By-Laws provide that a Medical Defense Committee has power to take such action.

The Committee on Time and Place for the 1931 annual meeting of the Society reported that they had received invitations from the physicians at Rawlins and at Rock Springs, but that the committee recommended that we hold our next meeting at Rawlins and that the time be left to the Secretary.

Whereupon the House of Delegates adopted the report and selected Rawlins for the 1931 meeting.

Dr. Whedon presented an application from the Utah State Medical Association asking for the privilege of joining in the Tri-State Meetings of the states of Idaho, Montana and Wyoming in the Yellowstone Park Meeting and upon motion duly made, seconded and carried this request was granted and the House of Delegates recommended to the State Societies of Idaho and Montana the admission of Utah in this Association.

Thereupon the House of Delegates adjourned.

PROGRAM OF THE WYOMING STATE MEDICAL SOCIETY TWENTY-EIGHTH ANNUAL MEETING

SUNDAY, JULY 13, 1930

8:00 P. M.—Smoker at the Country Club.
The Sheridan County Medical Society, entertaining. (See entertainment for visiting ladies.)

MONDAY, JULY 14, 1930

MORNING SESSION

6:30—Golf tournament at the Country Club.
9:15—CLINIC—U. S. Veterans' Hospital No. 86, with presentation of cases of various mental diseases.
11:30—First meeting of the House of Delegates. Administration Building, Staff room.
Lunch served by the Medical Staff of the Veterans' Bureau.

AFTERNOON SESSION

Elks' Club—Lodge Room

1:30—CALL TO ORDER—Dr. C. W. Jeffrey, President, Wyoming State Medical Society, Rawlins.
ADDRESS OF WELCOME—Chas. P. Story, Mayor of Sheridan.
ADDRESS OF WELCOME—Dr. C. E. Stevenson, President Sheridan County Medical Society, Sheridan.
RESPONSE—Dr. E. L. Jewell, President-elect, Wyoming State Medical Society, Shoshoni.
PRESIDENTIAL ADDRESS—Dr. C. W. Jeffrey, Rawlins.
SECRETARY'S ANNUAL REPORT—Dr. Earl Whedon, Sheridan.
PAPER—"Diathermy in the Treatment of Pneumonia," Dr. Herbert L. Harvey, Casper.
PAPER—"Asthmas, Secondary to Focal Infection," Dr. J. B. Potts, Omaha, Nebraska.
PAPER—"Emergency Treatment of Eye Injuries," Dr. W. W. Yates, Casper.
6:30—Annual banquet at Hotel Lodore, at the foot of the Big Horn Mountains, tendered by the Sheridan Medical Society to all members of the State Medical Society, their ladies and guests.

TUESDAY, JULY 15, 1930

MORNING SESSION

6:30—Finals of Golf Tournament.
9:30—Clinics at the Sheridan County Hospital. Conducted by members of the Sheridan County Medical Society.
11:00—Meeting of the House of Delegates. Parlor of Nurses' Home.
Luncheon served by the Hospital Management.

AFTERNOON SESSION

Elks' Club—Lodge Room

1:30—Scientific Meeting.
PAPER—"Spinal Anesthesia," Dr. W. W. Horsley, Lovell.
PAPER—"Immediate and Late Results of Pereneal Prostatectomy," Dr. Edwin Davis, Omaha, Nebraska.
PAPER—"The Elimination of Unsuspected Malignancies in Making a Diagnosis," Dr. Elizabeth Newcomer, Denver, Colo.

WYOMING STATE MEDICAL SOCIETY
1930 Membership

Name	Address	Society
Barbee, Merle	Torrington	State
Barber, Raymond	Rawlins	Carbon
Beard, C. Y.	Cheyenne	Laramie
Beck, F. L.	Cheyenne	Laramie
Brownrigg, W. J.	Guernsey	Platte
Carr, J. E.	Sheridan	Sheridan
Carter, C. Dana	Thermopolis	Hot Springs
Chambers, O. C.	Rock Springs	Sweetwater
Clark, P. J.	Powell	Northwestern
Clegg, E. G.	Monarch	Sheridan
Collins, W. H.	Wheatland	Platte
Conway, J. H.	Cheyenne	Laramie
Cotton, Wendell	Edgerton	Natrona
Caddock, F. B.	Sheridan	Sheridan
Crandall, Myron L.	Rawlins	Carbon
Crane, R. E.	Sheridan	Sheridan
Dacken, V. R.	Cody	Natrona
Dale, E. E.	Edgerton	Natrona
Day, W. R.	Cheyenne	Laramie
Dean, T. A.	Casper	Natrona
DeKay, E. W.	Laramie	Albany
Denison, E. G.	Sheridan	Sheridan
Dolan, F. A.	Sheridan	Sheridan
Dunkle, Frank	Meeteetse	Northwestern
Einhorn, N. H.	Midwest	Natrona
Eskelson, F. G.	Evanston	Uinta
Finch, Harold	Laramie	Albany
Fish, C. E.	Wheatland	Platte
Fosner, L. E.	Evanston	Uinta
Fox, G. A.	Cheyenne	Laramie
Fuhrer, J. E.	Reliance	Sweetwater
Geis, N. C.	Casper	Natrona
Goldberg, Maurice	Kemmerer	State
Goodnough, J. H.	Rock Springs	Sweetwater
Gorder, J. W.	Greybull	Northwestern
Gray, W. O.	Worland	Northwestern
Guthrie, J. B.	Cheyenne	Laramie
Hale, R. W.	Thermopolis	Hot Springs
Hamilton, A. B.	Laramie	Albany
Hamilton, A. G.	Thermopolis	Hot Springs
Hansen, H. P.	Burns	Laramie
Harris, H. T.	Basin	Northwestern
Harris, C. E.	Basin	Northwestern
Harvey, H. L.	Casper	Natrona
Hassed, W. H.	Cheyenne	Laramie
Henneberry, T. J.	Cheyenne	Laramie
Holland, J. H.	Evanston	Uinta
Horsley, W. W.	Lovell	Northwestern
Horton, F., Sr.	Newcastle	State
Holtz, Paul R.	Lander	Fremont
Howe, Louis	Cody	Northwestern
Huffman, F. G.	Wheatland	Platte
Hunt, C. E.	Laramie	Albany
Hunter, J. S.	Gillette	State
Hylton, J. R.	Douglas	State
Hynds, John	Buffalo	Natrona
Jeffrey, C. W.	Rawlins	Carbon
Jewell, E. L.	Shoshoni	Fremont
Johnson, S. W.	Sheridan	Sheridan
Johnson, L. D.	Casper	Natrona
Johnston, G. P.	Cheyenne	Laramie
Joyner, Nevill	Casper	Natrona
Kamp, J. C.	Casper	Natrona
Kanable, Russell H.	Basin	Northwestern
Keith, M. C.	Casper	Natrona
Kinney, O. B. C.	Cody	Northwestern
Knebel, W. J.	Buffalo	State
Krueger, K. E.	Winton	Sweetwater
Lacey, W. M.	Cheyenne	Laramie
Lae, F. M.	Cody	Northwestern
Lane, Chas. E.	Elk Basin	Northwestern
Lathrop, H. R.	Casper	Natrona
Lauzer, E. S.	Rock Springs	Sweetwater
Leake, R. M.	Laramie	Albany
Lenz, D. S.	Midwest	Natrona
Lewellen, J. D.	Cody	Northwestern
Lucic, H. L.	Cheyenne	Laramie
Lusk, W. A.	Chugwater	Platte
Magrath, M. E.	Cheyenne	Laramie
Markley, J. P.	Laramie	Albany
Meredith, L. C.	Sheridan	Sheridan
Metz, Peter F.	Thermopolis	Hot Springs
Mills, F. A.	Powell	Northwestern
Mokler, V. A.	Thermopolis	Hot Springs
Montgomery, R. C.	Thermopolis	Hot Springs
Morad, N. E.	Casper	Natrona
Morris, M. L.	Pine Bluffs	Laramie
Myre, S. L.	Greybull	Northwestern
Mylar, W. K.	Cheyenne	Laramie
Murphy, G. D.	Lusk	Niobrara
McDermott, W. O.	Casper	Natrona
McDermott, B. V.	Hanna	State
McDill, Wilson	Dines	Sweetwater
McHenry, J.	Edgerton	Natrona
McLellan, A.	Casper	Natrona
McLellan, Lawrence	Casper	Natrona
Nelson, N. C.	Cheyenne	Laramie
Newman, J. R.	Kemmerer	State
Nolan, M. J.	Casper	Natrona
Noyes, E. F.	Dixon	State
Olson, Evald	Meeteetse	Northwestern
Pavy, O. S.	Laramie	Albany
Phelps, Geo. H.	Cheyenne	Laramie
Phifer, F. W.	Wheatland	Platte
Pierce, J. R.	Thermopolis	Northwestern
Price, J. W.	Laramie	Albany
Reed, O. C.	Torrington	State
Reed, Paul S.	Worland	Northwestern
Reeve, Roscoe	Casper	Natrona
Replogle, J. F.	Lander	Fremont
Riarch, T. J.	Casper	Natrona
Roberts, W. H.	Sheridan	Sheridan
Sanden, O. A.	Bairoil	Natrona
Sanders, R. H.	Rock Springs	Sweetwater
Savory, G. B.	Cheyenne	Laramie
Scheidegger, E. F.	Green River	Sweetwater
Schunk, E. R.	Sheridan	Sheridan
Seibel, R. A.	Casper	Natrona
Shaffer, F. C.	Douglas	State
Shingle, J. D.	Cheyenne	Laramie
Smith, G. C.	Sheridan	Sheridan
Smith, W. Francis	Lander	Fremont
Solier, C. H.	Evanston	Uinta
Steffen, W. A.	Sheridan	Sheridan
Stevenson, C. E.	Sheridan	Sheridan
Stewart, J. G.	Sheridan	Sheridan
Strader, G. L.	Cheyenne	Laramie
Swisher, T. J.	Los Angeles	State
Tabor, Leonard	Glenrock	Natrona
Taggart, A. T.	Lodge Grass, Mont.	Sheridan
Tonkin, A. B.	Riverton	Fremont
Trueblood, R. C.	Cody	Northwestern
Tucker, Arthur	Seattle	State
Veach, O. L.	Sheridan	Sheridan
Wanner, J. G.	Green River	Sweetwater
Watson, E. Sheldon	Lusk	State
Wetlaufer, N. R.	Cheyenne	Laramie
Whalen, J. F.	Green River	Sweetwater
Whedon, Earl	Sheridan	Sheridan
Whitlock, J. R. A.	Powell	Northwestern
Wicks, J. L.	Evanston	Uinta
Williams, L. A.	Laramie	Albany
Wills, C. L.	Parco	State
Wilmoth, L. H.	Lander	Fremont
Wilson, J. D.	Rawlins	Carbon
Woodward, Stillman	McFadden	Carbon
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